SCIENTISTS OF ANDHRADESA
(Ancient & Medieval)

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PREFACE

We try to identify the political, social, economic and religious factors behind any significant incident in history and which precipitated the changes in the process of human development It is also equally important to know the technological and scientific developments and their impact on the society Many questions regarding this, pervaded my mind and I have taken up the work to find answers to such questions In the process of such a work, I found the contribution of the scientists of Andhradesa very significant especially during the medieval period, when the indigenous systems received a serious set back in the northern part of our country In this work, an attempt is made to putforth an account of some of the scientists of this region. The major problem in dealing with this task is to find out the dates of the scholars.

It is not proper to trace the development of any science without finding out the chronology of the scientists Many inaccuracies may occur in tracing the development of the sciences in the absence of a serious attempt in this regard. But it proves to be a difficult task as the authors of works on sciences did not give much information regarding their personal life. Some mentioned only the name of their father or preceptor while paying respects to them in the introductory verses. It indicates the fact that they were interested only in human welfare and least bothered about their fame. It may reveal their noblemindedness but became an obstacle in our attempts to identify their chronology. Therefore, a perusal into the text to find out the textual evidence to prove the date and place of the scholars, is needed A rigorous study of the other contemporary literary and scientific works and of the epigraphical records also helped in this regard.

I received much help and encouragement from many scholars. Among them, who need special mention are Prof.Y.Vaikuntham, Dept. of History, Osmania University, Prof.K A Basavaraja, Dept of History, Karnataka University, Dharwad, Prof.Virathappa, Retired Professor of History, Banglore, Prof.Chitnis, Dept of History, Poone, Prof.S.N.Rao,Dept of History and Dr.H.Sivakumar, Reader in Telugu, Kakatiya University, Warangal, Prof.V.Ramakrishna and Dr A Murali,

Dept of History, University of Hyderabad. I am grateful to them for their help and encouragement in all my academic pursuits I record my deep sense of gratitude to Dr Krishna Sastri, Director of Archaeology & Museums, Hyderabad, for his kind permission to make use of his office library in this research work

In the collection of the source material, Sri C Govinda Reddi, Librarian, Institute of History of Medicine, Hyderabad, the librarians in Osmania University, Kakatiya University, Regional Library, Warangal and the Curator and other pandits in Govt Oriental Manuscripts Library, Madras rendered a great help I express my thanks to all of them for their help.

I am very much grateful to Padmabhushan Prof C Narayana Reddi, Vice Chancellor, Telugu University, who sanctioned grant for the publication of the present work.

I express my sincere thanks to Sri G.S Madhava Rao, Correspondent of our college, Dr. Vidya Rani, our Principal and all my colleagues, who encouraged me in bringing out this work into light.

I wish to express my thanks to my father Sri P.Sitaramaiah, a scholar in Telugu and Sanskrit, my husband Sri D.Prasada Rao, my brother Mr P.P Sarathi, who extended their help in every stage of this work.

My special thanks are due to Messrs. APPLE REPROGRAPHICS and SREE VANI COMPUTERS for their fast and neat completion of the printing of this work within the stipulated time.

Warangal,

22-03-92. POLAVARAPU HYMAVATHI

Dedicated

To

Padmabhushan Sri Kongara Jaggaiah, D.Litt., a crest-jewel among the Indian artists, a poet and above all a noble minded personality and who is a source of inspiration for me from my childhood.

ABBREVIATIONS

A Des Cat Tel Mss	A Descriptive Catalogue of Telugu Manuscripts, Government Oriental Manuscripts Library, Madras
A L M	A Catalogue of the Sanskrit Manuscripts in the Adayar Library.
A R E	Annual Report on Epigraphy, Madras.
A R S M	Typed list of Manuscripts in the Library of the Arsha Rasayanasala, Muktyala, (A P) prepared by Dr B Rama Rao
B O R I	. Descritive Catalogue of the Government Collections of the Manuscripts Deposited at the Bhandarkar Oriental Research Institute compiled by Har Dutt Sarma
Bulletin, DHM	: Bulletin of the Department of History of Medicine
Bulletin IHM	: Bulletin of the Institute of History of Medicine
Bulletin IIHM	: Bulletin of the Indian Institute of History of Medicine.
C S	: Carakasamhita
C S C L	: Descriptive Catalogue of Sanskrit Manuscripts in the Library of Calcutta Sanskrit College, Calcutta.
E A	. Epigraphia Andhrica
E I	Epigraphia Indica
F S	Further Sources of Vijayanagara History
G O M L	Government Oriental Manuscripts Library
J A H R S	Journal of the Andhra Historical Research Society
N D I	Nellore District Inscriptions

O I B	An alphabetical list of Manuscripts in the Oriental Institute, Baroda
O L M	Catalogue of Manuscripts in the Oriental Library, Mysore
S A O U	List of Sanskrit Medical Manucripts in the Sanskrit Academy, O U prepared by B Rama Rao
S I I	South Indian Inscriptions
S S	Susruta Samhita
T S M L	Tanjore Saraswati Mahal Library
T T D I	Tirumala Tirupati Devasthanam Inscriptions

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INTRODUCTION

The Andhra Country was originally famous for its achievements in the Vedic knowledge and other fields even by the time of Aitareya Brahmana Not only in the *agamas* but also in the technical sciences, they achieved developments amalgamating the ideas borrowed from the other regions of the country to that of the local systems or ideas The Kakatiya, Reddi, Padmanayaka and the Vijayanagara kings who ruled the Andhra region during the medieval period, aimed at upholding the Hindu dharma and culture They encouraged scholars in various branches of learning to teach, propagate and enrich the indigenous sciences The generals of the kings, the merchants and the common people too followed the foot steps of their masters and made many grants to the scholars As a result of it, every field of learning was developed Investigations into the subject gave much scope for research work in the sciences like, medicine, veterinery science, mathematics etc

It is a well known fact that the geographical conditions of a country influence its process of development in every sphere Being located in the centre of the country, the Andhra region acted as a catalyst in synthesizing the Aryan and Dravidian cultures into an unique form Having a large coastal line, thick forests, many hills, a well-watered and fertile region and with a variety of flora and fauna and mineral resources, Andhra region developed its culture in a significant way Nearness to the sea, encouraged the Andhras to develop the seafaring activities Through the ports of Motupally, Pulicat, Masulipatnam, Kalingapatnam, Nagapatnam, etc , the merchants of Andhradesa sailed out for centuries along with their merchandise with the products of far off countries. The epigraphical and literary sources inform us that the trade was mainly done in the medicinal goods and the spices. Many medicinal substances were carried by the merchants of Andhradesa such as Apaci Tippaya Cetti, Devayacetti, Camicetti, etc. They brought some new and valuable substances from those countries and introduced them in this region As a result of it, the exchange of views also became inevitable with the exchange of goods Thus the merchants of Andhra region played a vital role in the exchange of views with regard to medicine especially in case of *materia medica* They introduced many of our medicines in the foreign lands and brought many new medicinal substances from the other places The hill ranges and the forests also played a vital role in the development of the science of

Andhradesa The chief ranges of hills in Andhra are Eastern ghats These hill ranges are known by different names in different areas The inhabitants of these regions are the aboriginal tribes who are experts in identifying the herbs Many of them led their life by selling the drug substances and spices The hill ranges in Visakhapatnam district are known as "Palakondalu", "Nilagiri" and "Anantagiri" The Godavari, Krishna and Penna break through the eastern ghats to enter the coastal region and then flow into the sea For some distance, the river Godavari flows through the high walls of the eastern ghats, which are locally named as "Papikondalu" To the South of the Krishna, extend the Nallamalai hills, which are famous for their rich flora and fauna The famous medico-religious centres such as Srisailam and Ahobilam are situated on these hills. In Bezwada, on the bank of the Krishna, there is Indrakiladri. In Palnadu area, there are several hills, Ganikonda, Nagarjunakonda, Bellamkonda, Kondavidu, Undavalli, Kotappakonda, Mangalagiri, Vinukonda and others To the west of the Nallamalai hills, there are Yerramalai hills To the east of the Nallamalai, are the "Velikondalu". In the chittore district are the Seshachalam hills. The famous pilgrim centre "Tirupati" is located on these hills During medieval days, there was a forest on the hills having many animals and herbal substances used in the preparation of medicines

The rivers helped the development of civilization The Godavari and the Krishna are the main rivers in this region Tungabhadra, Penna, Vamsadhara are the other important rivers. There are many other minor streams such as Bahuda, Sarada, Paleru, Maneru, Gundlakamma, Swarnamukhi, etc These rivers help to irrigate hundreds of thousands of acres of land These rivers are the means of transport of goods in the inland trade The delta area proved good to cultivate the new crops such as tobacco, *battai* (oranges brought from Batavia), chillies, etc , which were brought to South India by the Portuguese and the British traders Many other medicinal plants such as *phirangi*, opium, *khurasanivamu*, etc , were planted for the medicinal usage The famous temples of Andhradesa were constructed on the banks of the rivers so as water can be at hand According to *Rasasastra*, the *rasasiddha* centres must be constructed at a place where there is water in abundance. Alampuram, a great *rasasiddha* temple is built on the banks of the Tungabhadra Likewise, the temples at Amaravati and Srikakulam are built on the banks of the Krishna.

As the geographical conditions encouraged the sea-faring activities, trade and commerce also flourished, which in turn gave scope

for the development in accountancy The mathematicians of the period followed very shrewd methods of solving the sums We find many examples in the works of Pavuluri Mallana and Vallabharya Thus the geographical conditions of Andhra region helped to some extent in preparing ground for the development of the place as a great centre of scientific research

Political conditions and the Development of Sciences

The political conditions prevailed in the region during ancient and medieval period also attracted the attention of the scholars of various regions to come and settle here

The Andhra country was united for the first time by the Satavahanas The Satavahanas, who were the feudatories to the Mauryans founded an independent empire when the Mauryan government at the centre became weak The imperial dynasty of Satavahanas ruled the Andhra country for about 450 years from B.C 231 – 230 Their contribution in upholding the Vedic dharma, promoting arts and letters is quite remarkable. They achieved development not only in the agamas, but also in the technical sciences amalgamating the ideas borrowed from the other regions of the country to that of the local systems They followed the policies laid down in Kautilya's *Arthasastra*. A perusal into the work of Kautilya makes it clear that he gave much importance to the health care activities to be implemented by the kings to achieve public welfare. Kautilya laid down the general rules of conduct of the physicians, their responsibilities and privileges

Acharya Nagarjuna was a significant personality of the period, being a scholar in philosophy, alchemy, magic and medicine He established a University on Nagarjunakonda, where secular sciences like Ayurveda and chemistry were also taught He founded a hospital and a laboratory there which served as practical training centre to the students. He was a contemporary to the Satavahana king Vijaya Satakarni

After the Satavahanas, the Ikshvakus (A D 225-625), Pallavas, Kadambas, Anadagotras, Salankayanas (between A.D 300-420), Vishnukundins, Eastern and Western Chalukyas (625-1077-1118) ruled Andhradesa. The rulers of these dynasties followed the tradition of patronising the scholars in various subjects Especially, the public health-care activities encouraged by the Eastern and the Western

Chalukyas are noteworthy They supplemented the grants made by their preceding dynasty and never deprived the worthy scholars of the grants of villages they received from the former rulers. Jayasimha, the Eastern Chalukya king, the son and successor of Vishnu Vardhana I and who ruled for 33 years (A D 633-666) confirmed the village grant made by his predecessor, the Vishnukundina king Madhava Varma to Rudra Sarma. Jayasimha, himself was a great scholar and had the title Sarvasiddhi He patronised all the arts and established learning centres

Ugrādityācārya, the author of *Kalyāṇakāraka* lived in the Vengi country and served the people with his art of healing in the middle of 9th c A D He was patronised by Kali Vishnuvardhana V, the Eastern Chalukyaking, who ruled between A D 847-49 The Saidapur inscription (A D 1034) informs us of the medical services extended to the common people by a Jain monk Aggalayya, who was a physician and a surgeon during the regnal period of Jayasimha II In Nellore district, we find an epigraphical reference to a grant of a village Eḏusantati (A.D.663) made by Vikramaditya, the western Chalukya king to Srimeghanacharya and Vajra Varma Vajra Varma is said to have belonged to a family of physicians and himself was a great physician[1] Another inscription from Kollipara (Guntur dt) informs us that a scholar in Ayurveda and Grammar namely Mugdhasivacarya was given a grant in the regnal period of the Vemulavada Chalukya king Arikesari I, between A D 780 — 800[2]. The record mentions that Arikesari himself was a great scholar in *gajatantra*, warfare, Ayurveda, etc

An inscription dated A.D.1119 records the grant of a village Peruru made by Tribhuvanamalla Vikramaditya, the Kalyani Chalukya king, to scholars in various sciences[3]

With the advent of the rule of the Kakatiyas, a new era started in the History of Andhradesa. The Kakatiyas started their political career as the feudatories of the Eastern Chalukyas. At about A D. 1120, Prola II started an independent rule. It was during the reign of Ganapathideva that the Kakatiyas became the undisputed masters of the entire Āndhradēśa Ganapatideva encouraged trade, commerce and agriculture which in turn achieved economic prosperity. He tried his level best

1 Vikramasimhapura madalasarvaswamu, p135.

2 Vijnanasarwaawamu - Telugu Samskriti, Telugu University, Hyderabad, 1987,pp 181-82

3 Ibid. pp 196.97

to maintain peace and harmony among his subjects

Ganapatideva donated several villages to Visweswara Sivacarya, who in turn established *mathas* there, dedicating them for the public welfare and promotion of learning Among such mathas established by him, the one located in Malakapuram (Guntur dt) seems to be the headquarters of his activities He established a hospital there with two wards viz , the General Hospital and the Maternity Home He maintained a learning centre also there, where sciences also were taught. He appointed some clerks, nurses, doctors, teachers and other craftsmen He also made provision for free feeding in the choultry established there irrespective of caste or creed including the outcastes[1] The Pillalamarri inscription dated A D 1208 refers to a grant made by Erukasanamma, who established a choultry granting land for the maintenance of students[2]

The great Kakatiya kingdom which ruled over Andhradesa for more than three centuries and which rendered conspicuous services to the Andhras, collapsed in A.D.1323 and the people fell prey to the cruelty of the Muslim chiefs and soldiers for sometime Sources inform us that by A D 1324, the coastal Andhra also came under the Muslim rule. Under their rule, the people of Andhra faced many problems Hindu priests were tortured The temples and the mathas which were great centres of social life lost their patronage Trade and commerce came to a standstill. It was only after the complete capture of the Andhra regions by the Reddi, Velama and the Vijayanagara kings that the Andhras breathed an air of safety and certainty

The Reddi kings and the Recerla Padmanayaka kings patronised many scholars who were learned in many sciences such as Ayurveda, Veterinery science, Astrology, Astronomy, etc. Both of them took great care in maintaining public health and hygiene in good condition. They gave grants to the *parahita* physicians who served the people without taking any fees in return for their services. They indirectly patronised the scientists in the temples and the maths which acted as great learning and research centres in those days. They appointed medical scholars as royal-physicians and honoured them The Ponnupalli grants inform us that Singanarya and Bhaskararya worked as the court-physicians. The Akkalapudi, Kaluvaceru and Ponnupalli grants inform us that nearly twenty members of this (parahita) family served

1 S.I I ,X-395; Inscriptions of Andhradesa, No 183,p 245

2 Telangana Inscriptions, Vol I No 11

the Reddi and the Recerla kings and their people

In A D 1336, the Sangama brothers Harihara and Bukka founded the kingdom of Vijayanagara Four dynasties ruled over this kingdom until A.D 1680 The Rayas of Vijayanagara gradually held away over the whole of Andhra The very aim of the establishment of this kingdom was to safeguard the Hindu *dharma* and culture. Immediately after the establishment of the kingdom, the illustrious brothers Madhavacarya and Sayanacarya started their sacred work-shop and gathered many scholars in various fields to revive and facilitate the development of Hindu culture They wrote commentaries to Vedas, Vedangas, Upanishads, Dharma Sastras, Darsanas, etc They did not leave any branch of learning untouched Knowing about this literary movement, many scholars from the northern part of India who were neglected by the Muslim rulers there, and who felt that there was not safety for their religious as well as scientific works came to this region with their wealth of wisdom and knowledge They were well-received by the kings, feudal lords, the Brahmins of the *agrahara* villages, the temples and the mathas.

Sayana wrote *Āyurvēda Sudhānidhi* The Brahmanakraku grant of Harihara II refers to one Śrigiripaṇḍita, wellversed in Āyurvēda. Bukkaraya I appointed Viṣṇubhaṭṭa as a physician in his court The scholar-physician wrote a medical work known as *"Rasarājalakshmi"*. Vishnubhaṭṭa, Dāmōdarapaṇḍita and Sarjnadhara were the other scholars who served the Vijayanagara kings and their people in the early years of their reign. Bukka II encouraged his personal physician Laxmanapandita to compose a medical treatise namely *Vaidyavallabha*. There were many such scholars. From the days of Devaraya II, scholars in veterinery science such as *asvavaidyas, gajavaidyas,* etc , were significantly patronised though it was not a new tradition. But it is a noteworthy thing that Sahityasamarangana Sarwabhauma Krishnadevaraya did not seem to have encouraged even a single scientist to compose any scientific work He might have maintained them in the court as usual like his predecessors. His brother Viranarasimharaya, according to *Rayavacakam*, used to hold darbar daily "attended by the 72 niyogis, his sons and sons-in-law, officers, chiefs, lords, *palaigars*, *amaranayakas*, well-wishers, dependants, learned men, *purohits*, *acaryas, jiyangars,* ascetlics, astrologers, physicians, cavaliers, *mahuts*, police officers, tributary chiefs, *vandis*, *vaitāḷikas*, *paṭāṇikas*, scientists, singers, playwrights, rhetoricians, artists and *vaiṇikas*. The Raya spent the time conversing with astrologers, gramarians and

dalanayakas about the happenings of the past, the present and the future[1]." We do not find any source to know that Krishnadevaraya honoured the scientists or that he granted lands to them to make them dedicate their lives for public service On the otherhand, we find two references in *Amuktamalyada* The first one indicates that a king should maintain physicians in his court[2] and the other reveals that a king should not give gifts to the scientists and *Yogis* lest they would neglect the public welfare and the people will suffer from diseases and ill-health[3] That's why we get a doubt that whether he put into practice what he expressed in his work Anyway it is a fact that he did not extend much patronage to the scientists as he extended to the poets Many medical scholars, veterinery scholars and mathematicians were patronised by the temples and the mathas during the sixteenth century Sources prove that SadasivaRaya and Ramaraya patronised scholars in many fields and made gifts to the *asvavaidyas* as well as the *naravaidyas* During this period, scientists enjoyed a higher status in the society But unfortunately, many of the works written by the scientists are not available today and their historicity and chronology are shrouded in the mist of antiquity

The roots in the development of mathematics can be gleaned in the earlyman's attempts to develop his technical skill in the preparation of his instruments. He took measurements into consideration in the preparation of his instruments so that they could be served exactly for the purpose Later in the process of human development, we find an important stage, the age of *Vedangas* in which period *Sulvasutras* were written as a part of the *vedangas* But the mathematical knowledge revealed in it is limited to the construction of Vedic altars which relate to geometry. Gradually, with the development of astronomy and astrology, the science of mathematics also developed These three developed as inter-related and inseparable till the time of Brahmagupta (A D.4thc.). Among the great astronomer-mathematicians of the siddhanta period may be mentioned in chronological order, Aryabhatta I, Varahamihira, Brahmagupta, Aryabhatta II, Mahaviracarya, Sridharacarya, Bhaskaracarya, Madhava, Parameswara and Nilakantha Bhaskaracarya, who belonged to the Devagirirajya, is considered to be the last and the greatest astronomer that India ever produced Though

1 Further Souces of Vijayanagara History, II-96.

2 Amuktamayada, IV-243

3 Ibid. V-271, 272

Bhaskara was indebted to Brahmagupta, he "improved upon him not through any great original contribution but by the thoroughness with which he could and did analyse the rationale of the calculations[1] The influence of Bhāskara's *siddhānta* can be found more on the Andhra scholars Many commentaries were written by the scholars of this region to the works of Bhāskarācārya. Bhāskara wrote *Siddhāntaśirōmani* and *Karanakutūhala* The former consists of four parts viz , *Līlāvati*, *Bījaganita*, *Grahaganita* and *Gōlādhyāya* *Līlāvati* and *Bījaganita* got much popularity in Āndhra It was translated into Telugu with commentaries Among them, the work of Vallabharya is noteworthy Though it is a translation, we find it useful in many aspects It not only reveals the developments achieved in the subject but also reflects the socio-economic life of the period.

Mahāvīrācārya's mathematical work *Ganitasārasangraha* was also widely studied in Āndhra region. It was translated into Telugu by Pāvulūri Mallana in the eleventh century A D. It is the first scientific work in Telugu. Hence we can see the influence of Mahāvīrācārya and Bhaskaracarya on the scholars and students of this region who aimed to gain great scholarship in astronomy, astrology and mathematics Pāvulūri Mallana and Vallabhārya though mention their works as translations, we find only basic principles from the original and the others given as examples as those of their creations They added here and there many new developments in the science. Hence we find them as almost independent works bringing in much new matter.

The root of indigenous medicine can be seen for the first time in the healing art of the primitive man Gradually, the leaves, the fruits, the roots, the bark, the stem, etc., and the mineral and the animal substances were added to the *materia medica* after a keen observation The remains of Indus valley civilisation (about B.C 3000) reveals the fact that the people maintained good sanitation and cleanliness for the upkeep of the community health. The two cities Harappa and Mohenjodaro had well-laid out street, supplied by feeder streets, bye-lanes and underground drains Many houses had wells, bathrooms, latrines and swimming pools There was a public bath found in Mohenjadaro with many rooms, platforms, staircases and a swimming-pool Houses were built on an elevated plat-form, with windows for good ventilation Thus it reveals the fact that there must have been existed a well-organised municipal administration which was very particular about the public-

1 Cultural Leaders of India; Scientists, Publications Division, Govt of India, 1981(2nd ed), P 101

health and sanitation But with the gradual development of religious ideas, the people also began thinking about the supernatural causes of the diseases Even the relics of Indus Valley civilization give some clue to the religious ideas of the people They worshipped the Mother-goddess and the Lord of Beasts who appears in the yogic posture sitting under a tree There is evidence of some form of phallic worship, with the representation of male and female generative organs, of tree-worship in which a deity is shown in the branches of the sacred fig-tree or pipal, still regarded as a holy tree The worship of the Mother-goddess in the epidemic diseases was prevalent in the ancient and the medieval days and still continued to the present day The recent archeaological findings at Paderu (near Visakhapatnam, A P) inform us that the worship of the Mother-goddess was prevalent even 20,000 years before Christ In the *rasasiddha* system of medicine which was later developed in South India, we find the worship of *linga* and *yoni*. Mercury and mica were identified as symbols of Siva and Parvati respectively

The indigenous system of medicine in India is named as *Ayurveda* It is considered to be an *upaveda* to *Atharvaveda* The medicine during the vedic period was magico-religious During the period of *Brahmanas* and *Upanishads* (B C 800-600), it is observed that it changed its shelter from the shadow of religion to that of philosophy

According to tradition, Ayurveda is taught by Brahma after recollecting from his memory to Prajapati, "Lord of the Creatures". From him, the knowledge descended to two Aswini Kumaras and then to Lord Indra Indra taught the science of medicine to Atreya and surgery to Dhanwantari. This may mean that Atreya, the physician and Dhanwantari, the surgeon were the first founders in their respective departments of medicine as a science. Atreya is believed to have belonged to the 6th c B C [1] Then follows the *Samhita* period The samhita period is considered as the creative period of Indian medicine The important Samhitas are· *Carakasamhita, Susrutasamhita, Bhēlasamhita* and *Kasyapasamhita* These samhitas are studied and followed by the scholars in different places and in different ages. Next follow the works of Vagbhata and Madhava. Vagbhata's *Aṣṭāngahṛdaya* and Madhava's *Mādhavanidāna* also gained great reputation in the field of medicine. There is a saying in Sanskrit which shows that in *nidana* (diagnosis) Madhava, in *cikitsa* (treatment) Caraka, in *sarira* (anatomy) Susruta and in *sutra* (principles) Vagbhata are the best. The Ayurvedic scholars of Āndhra accepted the principles laid down by the ancient *triad*. With

1 Kutumbaiah, *Ancient Indian Medicine*, p xviii

regard to the diagnostic and the therapeutic methods, etc., they took up research and invented many new things The indigenous system of medicine gradually developed in Andhradesa during this period and reached its zeneath by the efforts made by the scholars like Bahata, Sarjnadhara, Laxmanapandita, Srinivasabhatta, Vallabhacarya, Basavaraju, the *Siddhas* of Alampur and Srisailam and many others

In South India, there is another system of medicine known as *rasasiddha* system of medicine It is believed that it is emanated from Lord Siva. The founder of this school is said to be a Saiva saint named Agasthya who belonged to the sixth or seventh century A.D. Tamilnadu is believed to be the centre of its origin Later it spread to Andhra, Karnataka and Kerala. Nagarjunasiddha and Nityanathasiddha are the famous *rasasiddhas* of this region.

Previously, the science of climatology was studied as a part of astronomy. Donaya wrote *Sasyanandam* to enable the farmers to forecast the rainfall of the coming season It must have helped the people of those days when the majority depended on agriculture.

SOURCES

The source material which helps us in tracing the history of the scientists of Andhra can be categorised as Archaeological and Literary

Inscriptions

The grants made by the kings, their generals and the rich people to the scholars give us valuable information in tracing the historicity of the scientists or the authors of the scientific works. Some scholars, especially, the physicians and the scholars in veterinery science made grants to the temples. It indicates their sound financial position.

Inscriptions refering to the physicians :

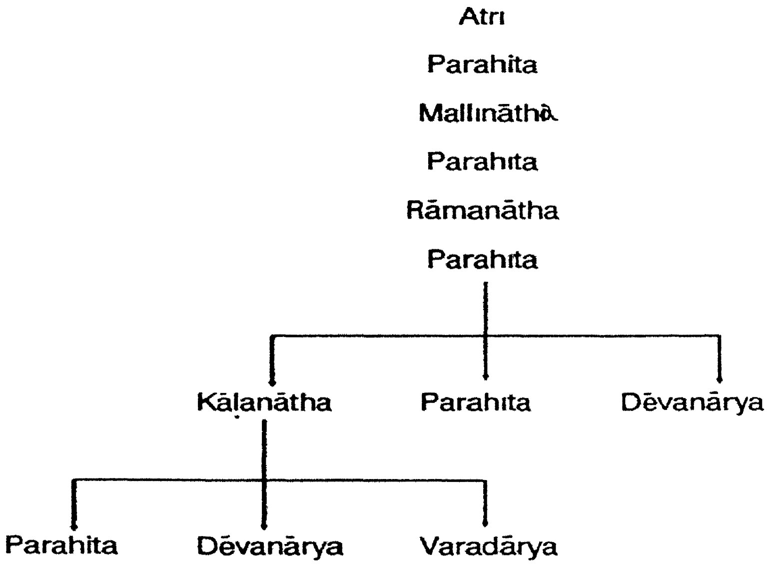
In some of the inscriptions of Andhradesa, we come across a category of physicians known as *parahitas*. In the beginning, only four or five inscriptions such as the Akkalapudi grant dated A.D.1368, two Ponnupalli grants dated A D 1404 and 1408, Kaluvaceru grant dated A D.1423 and the Kondapalli record dated A D.1546 were identified as the epigraphs which referred to the parahita physicians.

a. The Akkalapudi copper plate inscription[1] dated A.D 1368

1 Epigraphia Indica, Vol. XIII, No 24

registers a grant of Singayanayaka to his court-physician named Parahitacarya, who was equal to a minister in status This Parahitacarya belonged to Atreya *gotra* and hailed from the family of Kalanathabhatta

b. The Kaluvaceru grant of Anitalli[1] dated A D 1423 refers to the gift of the village Kaluvaceru after renaming it as Annavaram to the physicin called Parahitacarya The epigraph describes the family his-



tory of the physician in detail. The genealogical line that can be drawn from the information given in this record is as follows

All the family members are described as well-versed in the science of medicine and as experts in treating the mental and bodily diseases of human beings They were also experts in treating the diseases of other living creatures. There is a story in this record which describes his (Parahita's) humanitarian services not only to the human beings but also to the other creatures He once "saw, near an ant-hill, a snake which was suffering with a bone struckup deep between the two jaws. The kind physician, without any fear approached the snake and treated it. The snake having lost its pain in short time gave *abhaya* to the physician. Thus having done a good deed, beneficial to other

1 AndhraSahitya Parishat Patrika, Vol II, pp 93-96, Bharati, June, 1938, p 503

creatures, his name Parahita became well-deserved

c. The Kondavidu inscription dated A.D 1546[1] belonging to the regnal period of Sadasivadevaraya of Vijayanagara, records the gift of land to several scholars whose names included Parahitapanditulu, Somapanditulu, Asvavaidya Laxmana Panditulu, Timmapanditulu etc This inscription suggests the high position of the physicians in the society as it bears a gift of more land comparing to the other scholars

d. Two other inscriptions from Ponnupalli refer to the scholar physicians who were mentioned as born in Parahita family. The earlier inscription[2] from this place, dated A.D.1404 records the gift of a village named Ponnupalli to Bhaskararya, who was called the Dhanvantari of the world and was a prince among the scholar-physicians He was mentioned as born in a family called 'Parahita', a title which was acquired by a predecessor on account of his saving the life of a snake, in whose throat a bone of a frog was stuck-up and was causing intense suffering and risk to life. He belonged to Kasyapa gotra.

e. The latter record from this place[3] dated in A.D.1408, records the gift of the village to Singanarya by Peda Komati Vemareddy, the king of kings

The donees of the Akkalapudi and Kaluvaceru belonged to Atreya gotra The gotra of parahita panditulu of Kondavidu record is not known. The gotra of the parahitas referred in the two ponnupalli records is mentioned as 'Kasyapa'. It is interesting to note that the story of relieving a snake from pain is attributed to the credit of the predecessors of both the families. Dr B Rama Rao sumrises in this context thus "one posibility may be that a member of a family might have been adopted by another family, and he might have studied medicine under his own father or a member of his original family and the story might have been narrated to get a good name to him as well as to give credit to his ancestor."[4] There is another possibility that there might have occured a matrimonial relation between the two families out of which one family had the credit of its predecessor performing a meritorious deed described in the epigraphs. The earliest record which described the

1 S.I.I, Vol.IV -699

2 Andhrapatrika, Ugadi Sancika, 1924-25.p.291

3 Ibid

4 Bulletin, Institute of History of Medicine, Hyd Vol.VI,no.I p.35.

story belongs to the family of Kasyapa gotra Or it might be a mere fable narrated in the inscriptions to highlight the compassion for all creatures in their suffering and to illuminate the noble ideals of the medical profession

The above inscriptions which referred to the Parahita physicians made the scholars believe that there was a particular family known as Parahita family in Medieval Andhradesa But the observation of other records which are dated earlier clears the mist hanging over this subject

Tādikonda Record:

The Tāḍikoṇḍa inscription which mentions the gift of four villages by Ammaraja II, the Eastern Chalukya king to God Umamaheswara of the temple of *Samasthabhuvanāśraya* at Vijayawada, refers to Prabhutarāsi Paṇḍita, who had the title "Parahitavyasani" Prabhutarāsi was a Kalamukha priest of Simhaparishad at Bezwada This record is very interesting and valuable as we find an epithet "Pandita" is added to the name and a title "Parahitavyasani" These two terms are found generally attached to the names of the physicians in Medieval Andhradesa This record confirms the opinion that the physicians in ancient and medival Āndhradēśa had borne the titles as 'Pandita' and 'Parahita' [1]

Drākshārāma Inscription[2] dated in the tenth regnal year of Rajaraja II (A D 1155) It refers to the grant of a garden to the God by Suraya, who was a minister to Velanati Gonka. He is also mentioned as learned in medicine and was an important person in the village Kantapu. He was also described as "*Parahita - Paratantra*"

K.B.Museum Inscription[3] is a damaged inscription registering grant of a dry land and a flower garden to Bhima who is mentioned 'Vaidyavidyadhara'. He belonged to the family of physicians and one of his predecessors i e , Meda is described as well versed in medicine, especially '*Parahitavidhi*' As it is a damaged inscription, the date of the record is not available. On the basis of the Telugu characters of the

1 B.V.Krishna Rao, History of Eastern Chalukyas of Vengi, Hyderabad, 1973, pp. 286-88

2 S I I , Vol IV-1172

3 A Corpus of Inscriptions in the Telangana districts of HEH The Nizams Donations, Part IV, pp 104 109

record, it is considered to have belonged to 12th or 13th century A D

The mention of the word *Parahita* in these records of early medieval Andhradesa makes it clear that the Parahita physicians were there even before 14th and 15th centuries We can also see that the word *Parahita* was not reserved to any particular family Venkatanatha, the author of Telugu "Pancatantra" used the word "*Parahitacarana vidya*"[1] as a substitute to the science of Medicine Vemana the revolutionery poet of Medieval Andhradesa, also used the word "*Lokopakara*"[2] as a substitute to the word "physician" All the above information reveals the fact that the physicians who undertook the medical profession, promoting the welfare of the living-beings, were considered to be the parahitas. But here we should not overlook the fact that not all the physicians were called parahitas Those physicians who were scholars in all aspects of Medicine and who dedicated their lives for the public service without expecting any monetary benefit from the people They were granted lands by the kings and generals for the maintenance of their family and for the continuance of their profession

Saidapur (Nalgonda district) Inscription. This record belonging to the regnal period of Jayasimha II dated A D.1034 informs us of a Jain physician, Aggalayya[3] He is mentioned as *Vaidyaratnākara, Prāṇācārya* and *Naravaidya* This record mentions that he was also an expert in *Umātantra* This may mean the *rasatantra* as the medical works like *Arkaprakāśa* mentioned that it was revealed by Parvati or Uma He is also mentioned as an expert in surgery. The record registers a grant of a village named Muppanapalli to the head of that village to build a Jain settlement there Here it is a noteworthy thing that surgery was taken up by the Jains also. It proves wrong the notion that the Jains discouraged surgery Aleru was a famous Jain centre in those days. The Jainsaints might have spread throughout the district and served the masses with their talent in the art of Healing

Malakapuram Inscription

Another important inscription[4] which gives information about a

1 Venkatanatha's Pancatantra

2 Rogi narasinatti lokopakarulu-Bhogabhagyamulanu bondi tudanu purva vasanadegi puraharu ganturu Viswadabhirama vinura Vema

3 P.V. Parabrahma Sastri, 'epigraphical Allusion Vemana to surgery in Ayurveda', Bulletin of Indian Institute of History of Medicine, 1977, VII (3 - 4) . pp 127-130

matha-hospital is the Malakapuram grant It is dated in S 1183, in the reign of kakatiya king Ganapatideva and registers the gift of the village Mandaḍam, situated in the South of the Kṛṣṇa in Kanḍravātisīma in the Velanāḍu *Viṣaya* and of the village Velagapūḍi, together with an island in the river, by Ganapatideva and Rudramadevi to Visweswara Sivacarya of the Gōlakimatha Viśwēśwara Śivācārya, in turn, amalgamated the two villages into one and named it after himself Here he founded a temple, a monastery, a college, a choultry, a maternity home and a general hospital. He divided the whole land into four, one to *dravida* families, one for Siva temple, one for the college and another for the maintenance of the maternity home and the hospital A doctor and a compounder were appointed *in the hospital A feeding house was also maintained for feeding* all from the Brahmins down to an outcaste This information makes us believe that the hospital established by Visweswara Sivacarya was a big one having all facilities It had two wards i e , maternity and general Steps were taken to see all the requisites of a hospital be provided. Generally, a good hospital requires an efficient doctor, attendants, a good stock of important drugs, a good stock of food and regimen and maintenance of a garden This inscription from Malakapuram informs us that there were appointed artisans and other people skilled in handicrafts to make the instruments or storage articles to preserve the medicines The island donated must be the garden land for the cultivation of the herbs

Ksirarameswara Grant[1]: This inscription dated A D 1300 records the gift of a perpetual lamp to God Ksirarameswara by Vasudeva, who is an asvayurvedavetta (one who is profecient in the science of treatment of horses). Anantapandita, the father of the donee is also mentioned as an asvavaidya.

The Mancālla Grant[2]: This inscription of Vemareddy, the Reddi king of Kondavidu dated A.D.1340 refers to many scholars among whom we find the name of Ponukupati Visweswarabhatta, son of Peddibhatta who was the author of a medical work "*Madana Mahārṇava*". This record is also useful as it refers to Ramacandrabhaṭṭa son of Komḍubhaṭṭa of Śānḍilyagōtra. Ramacandrabhaṭṭa in his work "*Ṣāhitymanjūṣika*" mentions his father Konḍubhaṭṭa as entitled "*Dhanvantariavatāra nikhila*

5 Inscriptions of Andhra Pradesh. No 183,p 245

1 S I I , Vol.V, 130

2 Reddi Sanchika, Appendix, pp.3-9

vidyā sārvabhauma"[1]. This title indicates that Kondubhaṭṭa was a great physician and was considered as an incarnation of Dhanwantari

The Bitragunta inscription[2] This epigraph dated A D 1356 mentions that Sangama Bhupala II of Vijayanagara dynasty made a grant of a village Bitragunta to 28 scholars on the request of his guru Srikantha Pandita, Bhōganātha, the brother of Mādhava Vidyāraṇya and Sāyanācārya was the author of the record Śrī Kantha Pandita was also the guru of Bhōganātha.[3] He was a *Paramaśaivācārya* and the author of medical works such as *Hitōpadēśaḥ, Vaidyaka Sāra Sangrahaḥ* and *Yōgaratnāvaḷi.*[4] This epigraph is useful in tracing the date of these medical works. It is also useful in identifying the place and date of another scholar-physician Narahari who wrote "*Rājanighantu*" a medical dictionary since he mentioned Śrīkanṭha as guru.

The Kraku Grant of Harihara II[5] This grant dated A D.1376 registers the gift of the village Kraku to Brahmins by Harihara II for the merit of his father after renaming it as "Bukkarayapuram". It is very much useful as it gives a list of scholars (donees) among whom we find an Ayurvedic scholar i.e., Srigiri, son of Srivallabha of Srivatsa gotra. He is described as the foremost among the scholars of Ayurveda and Yajurveda This grant is of great importance for the other reason also. It mentions Sayanacarya, the Vedic commentator as one of the donees He is described as "*Vedabhasyakrt, Dhiman, Mayanacarya-nandana* and as Sayanacarya who is the very treasure house of Yajurveda and who was born in the Bharadwaja gōtra " From these details of this grant, we come to know that Sāyanācārya, the author of "*Āyurvēda Sudhānidhi*"[6] the brother of Mādhavācārya lived in Pākanāṭi Viṣaya (present Nellore district) of Vijayanagara empire.

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1 M.Suryanarayana Sastri, *History of sanskrit Literature*, Andhra Saraswata Parishat, Hyd., 1961,p.350

2 *Vikramasimhapuri mandala Sarvaswamu,* p 135

3 Mahalingam, T.V. Administration and Social Life under Vijayanagar, PartI, Madras, 1975,p264

4 Rama Rao, B.A Check list of Sanskrit Medical Manuscripts in India, Central Council for Research in Indian Medicine and Homeopathy, New Delhi, 1972, Nos 329, 914 and 1061 respectively

5 E.A. Part II, pp.77-83

6 Mahalingam T V *Opcit*, p 261.

Drākshārāma Inscription[1] dated in A D 1430. This epigraph records the gift made by Annaya Pandita to God Bhimēśwara of Drākshārāma, Annayapandita is mentioned as *Vaidyēndra* (king of physicians) and the sons of Kēśavācārya of Gautama gōtra

Two inscriptions from Tirumalai Tirupati Devasthanam[2]

These inscriptions dated in A D 1545, refer to Sri Rangacarya, son of Kandādai Bhāvanācārya Cilakamarri Vēnkaṭācārya the author of Telugu *'Bhēṣajakalpamu'* mentioned Kandadai Śrirangācāryulu as his guru So these records are helpful in tracing the probable date of the scholar physician i e , Cilakamarri Vēnkaṭācārya, son of Śaranyapādācārya

Thus the epigraphical data which is available helps us in proving the historicity of the mathematicians, astronomers, Ayurvedic and veterinery scholars, their chronology, geneology, their position in the society, etc , with the help of the other information coming from the contemporary works on sciences and the general literature to some extent

Inscriptions refering to the mathematicians

There are some inscriptions which refer to the mathematicians. The Vilasa grant of Prolayanayaka[3] belonging to A D 1330 refers to three mathematicians, viz , Vollibhaṭṭa, Bhāvanabhaṭṭa and Ramaya, who were mentioned as profound scholars in the subject Vollibhaṭṭa had the title "*ganitamarmavit*" (one who is wellversed in mathematics). Bhāvanabhaṭṭa is mentioned as "*aparagambhīra ganitārṇava*" (one who is like an ocean in the knowledge of mathematics) and Ramaya is mentioned as having the title of "*ganitabrahma*" (one who can create new methods in mathematics). But we do not know whether they composed any works on this science Venkata II, the ruler of Aravidu dynasty is mentioned in the inscriptions as the wisest men of his kingdom He was very much interested in mathematics and held discusiions to help for its development Fr Ricio writes, "the king has the disputations on God, philosophy and mathematics with the teachers or philosophers almost every day and Sanskrit was the medium in these disputations[4]

1 *SII*, Vol IV-1374

2 *T.T D.Epigraphical Series*, Vol.V.Nos.48,49 pp 116-118

3 *E I*, XXXII, 30

4 *The Aravidu Dynasty of Vijayanagara*, p 517

The science of mathematics developed at the hands of *niyogi* Brahmins who were engaged in the revenue department Some *niyogis* worked as accountants under the business men It is because of the efforts made by the mathematicians of the period that the Indian merchants and Brahmins became famous as fast and perfect accountants. Barbosa, the Portuguese travellor testifies to the ability of some of the merchants of Coramandal coast thus "they even when they were ten yers of age, went about changing coins" [1] Nuniz says that they were very acute and of much talent, very good at accounts.[2]

Literary Works:

The general literary works which help us in this regard can be categorised as Sanskrit and Telugu The works of Mallinathasuri and Gangadevi are useful to some extent Many Telugu works such as *Navānathacaritra, Krīḍābhirāmam, Simhāsanadwātrimśika, Kāśīkhanḍamu, Haravilāsamu, Manucaritra, Āmuktamālyada, Hamsavimsati, Bahuḷāśwacaritra*, etc , are helpful in many ways In those works, we find references to the description of scholars in various fields, their knowledge in the respective subjects, the systems followed by them, the description of different kinds of physicians, their status in the society, various kinds of medicines, herbs etc

Navanāthacaritra gives a coherent account of the lives of the *navanāthasiddhas* The last three chapters deal with the pursuits of these *Siddhas* in alchemy *Parakāyapravēśa* (entering into the body of others) and the attainment of *vajradēha* It also gives a glimpse into the experiments made by the alchemists The reference from the verses of Vemana and Peddana give us an idea about the status of the physician in the society and some valuable information regarding the instruction in the sciences Vemana stresses on the importance of the practical knowledge thus [3] "Without self-observation and experience, mere knowledge of the science will niver remove the doubts of the aspirant, no more than darkness will be dissipated by a painted lamp " Without practical training, the *guru* did not give the permission to start his profession. In *Manucaritra* of Peddana, we find that the student after learning the science of medicine with its eight branches had undergone

1 Barbosa, ii, p 73

2 Sewel, *Forgotten Empire*, p 390

3 *Verses of Vemana*, 1091

the practical training [1]

Rāyavācakamu, Āmuktamālyada and *Hamsavımśatı* informs us that the kings used to maintain scientists in their courts *Hamsavımsatı* gives a description of the appearance of scholars in various fields We can notice a fact that the scholars in mathematics who were patronised in the royal courts and who were recruited in the services of the feudal lords and the rich merchants enjoyed higher status in the society But the position of the common *nıyogi* was not satisfactory inspite of his profoundity in his subject. *Hamsavımśatı* describes a *nıyōgı* who was wellversed in *Kṣētragaṇıta, Sauvarṇagaṇita, Mıśragaṇıta, Prakırṇagaṇita, Traırāśıka, Sūtragaṇıta, Bhınnagaṇıta*, etc , and also in the foreign systems: and who was mentioned as worth praising for the knowledge in his subject as the king among the mathematicians, wearing an ordinary old dress (nırkavi dhoti) and a silver finger-ring [2] The same work gives a description of a physızıan thus "The physician has a curly hair and wears a turban which has a silver threaded border, he puts on a half-old cloth over his shoulders, a ring (wıout any stone, which is known as *cuṭṭungaramu*) to the little finger, rings studded with precious stones to the other fingers and concave year rings, he smears sandal paste on the forehead, he holds a bag of medicines under his armpit and wears shoes." He is mentioned as an expert in making fine conversation with others and capable of maintaining his profession smoothly. He is said to have endowed wit so great a memory and recollecting power that he can answer with-out any hesitation even in an argument with the Asvinikumaras. *Paramayōgıvılāsamu*, another literary work of this period also gives almost the same account about the physician of the period [3]

The regionwise study of the scientific works helps us in identifying the scholars and their dates It also helps us in tracing the development of scientific ideas, the contribution of the scientists and their innovations in their respective fields In medieval India, Sanskrit was the unifying factor among the Indians who speak different languages in different regions of the country The people of Andhradesa showed much regard to this classical language Before the fifteenth century, the scientists believed that it was appropriate to write their works in this classical language They might have thought that it was

1 *Manucarıtra*, V-16

2 *Hamsavımśatı*, V-26, 27 & 28

3 *Paramayōgıvılāsamu*, p.450

the better way to share their views with the scholars of different regions All the works of the scientists about whom we discussed in the forerunning pages need a careful perusal in their achievements. Thus we get considerable volume of material bearing directly or indirectly on the subject The authorship of the work, its date and the relevance of the facts mentioned in the work are carefully observed and studied before taking into consideration

The main objectives of this study are to trace the historicity of the scientists in different branches of sciences in this region, to decide their probable dates with the help of various sources available, to discuss the developments achieved by the scientists in their fields and incidentally to observe the position of the scientists in the society and the ethics followed by them in their professions, their sense of social responsibility etc

The achievements of medical scholars from Nagarjuna to the later medical scholars such as Aija Srinivasarya, Trimallabhatta, Mudimbi Venkatacarya, etc are dealt in the first place Secondly, the contribution of Mallāri Pandita, Manumachibhaṭṭa and Nāraya Mantri to the veterinary science is explained The contribution of the mathematicians Pāvulūri Mallana and Vallabhārya is dealt with in the third place. Lastly, Dōnayāmatya's efforts in framing certain laws which help in forecasting the rainfall of the coming season are discussed An effort is made to make this study useful to research scholars working on the socio-economic history and on the history of sciences.

I. MEDICAL SCIENTISTS OF ĀNDHRADESA

A. EARLY SCHOLARS

SIDDHA NĀGĀRJUNA

Dravidians developed an unique culture even before b.c 3000 by establishing significant political, social, economic and religious institutions. The relics of their civilization indicate that they developed a keen botonical observation and identified the qualities of many plants and trees They also identified the nature and uses of many plants and trees They also identified the nature and uses of many animals with minute details. They observed that not only the herbal substances but also the animal substances can be used in the preparation of medicines The plants and animals which were identified as highly medicinal were worshipped along with the divine parents, i e , pasupati and paravathi Gradually they observed the functions of the human body and practised Yoga as means to achieve mental as well as physical health and worshipped Siva in yogic posture Thus they developed gradually, a medical system which was unique with its peculiar features Later when they were driven to the South by the Aryans, they developed their culture in the south within their traditional socio-religions institutions In the medical ground, they developed a new system known as *rasavaidya*, using the minerals in the preparation of drugs Previously they identified the medicinal uses of almost all the herbal and animal substances Then turned their attention to the minerals, made experiments to identify their qualities. Thus started the efforts of making chemical medicines They succeeded in finding out the methods of calcination and incineration of mercury. It seems that the metallurgists first tried to transmute the base metals into noble ones, i e., undecaying ones In the second stage, the scientists tried to make use of the superior metals in the preparation of medicines to attain the betterment of the human body, i e , to make it free, free of oldage and disease. They made experiments with gold, mercury, silver, sulphur, etc. They identified mercury and sulphur as father and mother of metals They succeeded in preparing medicines with the combination of mercury, gold and sulphur which they believed as elixirs of life. Those who attained this knowledge and those who made use of these medicines were known as *siddhas*. In the beginning, it was called as *rasasastra,* but gradually it developed with regional variations in the south

In Tamilnadu, Siddha system developed as Agasthya system It is believed that Agasthya followed by eighteen siddhas in succession developed the system In other parts of India, it developed as *rasa* system also called as belonging to *Saivasampradaya.* The Saivas believed mercury as the very semen of Lord Siva and sulphur as the menstrual blood of Parvathi They prescribed the application of the drug along with some incantations Hence this is also known as tantric system But the date of the origin of *rasasastra* in our country is a question of controversy today like many other things in the History of India due to lack of proper sources

There were many *siddhas* belonging to the other faiths such as Jainism and Buddhism Among such *siddhas*, Nagarjunasiddha was a significant personality as he composed many works in chemistry, alchemy, metallurgy and medicine. Unfortunately, his life time also could not be easily identified as there were some other scholars on his name. According to medical scholars, there was one Nagarjuna before Buddha, who composed the *Uttarakhanda* of *Susrutasamhita* [1] Another Nagarjuna who is well noted as Acarya Nagarjuna lived in the reign of Vijayasri Satakarni [2] According to some historians, he too was a scholar not only in Mahayana philosophy but also in sciences like medicine and chemistry. He established a University on Nagarjunakonda where scholars from far away countries also studied. K Balendu Sekharam described him as "the Napoleon of the propaganda of health and physical fitness" [3] The inscription mentioning the *jwaralaya* (fever hospital) and the remains of the *jwaralaya* at the University area in Nagarjunakonda area are ample evidences to prove it.

The third Nagarjuna can be found mentioned in the Jaggayyapeta inscription which is engraved on a *stupa* by Candraprabhacarya, desciple of Jayaprabhacarya who was a desciple of Bhadanta Nagarjunacarya The date of the inscription is believed to be 6th century A D. Hence Bhadanta Nagarjuna's life time is believed as between A.D.480-550. This Nagarjuna is identified as Siddha Nagarjuna by Ch.Seshagiri Rao with the help of the available historical sources. In *Navanāthacaritra,* we find a reference which mentions that Allamaprab-

1 V.Sankarasastri, *Ayurveda Itihasamu* (Tel), Telugu Akademi, Hyderabad, 1987, p 59.

2 *Vijnanasarwaswamu,* (Tel), Telugu University, Hyd , 1987, p.333

3 K Balendusekharam, *The Andhras Through the Ages*, Srisaraswati Book Depot, Hyderabad, 1973, p 135

hu (12th c.A D) defeated and converted Gorakshanatha, who belonged to the line of Minanatha's desciples into Saivism Mīnanātha was mentioned in the Tibetan sources as belonging to Mahayana faith Hence it is clear that the followers of Minanatha before Gōrakshanātha followed Mahayana faith and Nagarjunasiddha was one among them The internal evidence of *Navanathacaritra* also proves the fact that the siddhas before Gorakshanatha were not Saivites Ugradityacarya (A D 845) who explained the mercurial and mineral medicines in his work, paid his regards to this Nagarjuna and referred him as Bhikshu [1]

Nagarjunasiddha toured all over the country and visited many other countries outside India. In Andhradesa, he established centres of learning at Amaravati, Srisailam, Nagarjunakonda, etc Huen Tsang (A.D.630-644) mentioned a Nagarjuna who was a scholar in chemistry and alchemy and who was a friend to Satavahana king Alberuni, who visited India early in the eleventh century also refers to him but mentions that Nagarjuna lived just 100 years before him But there is no evidence to show that another Nagarjuna lived after Siddha Nagarjuna. Huen Tsang might have mistakenly clubbed the two Nagarjunas i e , Acarya Nagarjuna and Siddha Nagarjuna and wrote that he was a contemporary to Satavahana king. But the king is that these two persons were great scholars in Mahayana school of philosophy It seems that Siddha Nagarjuna took up the work left over by Acarya Nagarjuna in the second century A.D. and continued research both in philosophy and sciences He was very compassionate and dedicated himself for the upliftment of the poor people.

Siddha Nagarjuna's contribution for the development of sciences such as chemistry, alchemy and medicine are quite remarkable It seems that he developed *yogasana* system as a part of medicine and propagated its importance. He built a stadium on the Nagarjuna hill where yoga was practised and demonstrated.

The works composed by Siddha Nagarjuna are : 1 *Lōhaśāstra*, 2. *Kacchaputatantra*, 3. *Rasakacchaputa*, 4 *Rasēndramangalam*, 5. *Yōgasāra*, 6. *Ārōgyamanjari*, and 7 *Ratiśāstra* [2] There is a medical formula against eye-diseases namely "*Siddha Nagrjunavarti*" found engraved on a pillar installed in Pātalīputra This medicine was invented by Siddha Nagarjuna. Not keeping it as a secret as many scholars of

1 B Rama Rao, Kalyanakaraka *Bulletin of Department of History*, Vol II, p 208

2 V Sankara Sastri, *Ayurveda Itihasamu*, p.60-63

his time did, he got it engraved on the pillar for the benefit of the common people It indicates his broadmindedness and his zeal to fulfil the objective of the science of medicine, i.e , the welfare and prosperity of all the people.

Medical scholars identified his innovations such as the preparation of some *yantras* (mechanical contrivances) like *tiryakpatanayantra*, its usage, the amalgamation of mercury with sulphur and many herbo-mineral drugs [1]

There are many stories about the death of Siddha Nagarjuna, his guru Minanatha and his desciple Atreya It was very much propagated that these people knew how to transmute the baser metals into gold. According to the legendary stories and *Navanathacaritra,* this caused their tragic end It seems that the Vaishnava preachers propagated against his attempts to prepare gold, an embodiment of Mahalaxmi and condemned it as a sinful act The political conditions of the region also provoked the tragic situation When the Vishnukundin kingdom became weak and divided Siddha Nagarjuna gave support to the local fief and fortified the Buddhist centre at Nagarjunakonda He extended his help and services to the ruler as well as the common people and tried to convert the region flourished with wealth, health and prosperity In the meanwhile, Pallavas in their attempts to extend their borders upto the Krishna had received the full support of the Vaishnava preceptors, who were jealous of Nagarjuna's successes in this region According to a legendary story, Nagarjuna was killed by Lord Vishnu coming in the guise of a Brahmin. But it must be that Kumara Vishnu II (A D.476-515) killed him in a coup with the Brahmins of Vaishnava faith. According to another story, the Brahmin scholars defeated him in a religious discourse and bade him die. Siddha Nagarjuna then shut himself in a room and was found as a bird flying out from the room when opened after three days. Anyway, these stories prove the fact that his death was not natural and it happened as a result of the conspiracy of the Vaishnavas with the help of the Pallava ruler Kumara Vishnu. As Nagarjuna gained popular support in full, they might have feared of the popular uprising against them. Hence they tried their best to colour the event They propagated that Lord Vishnu himself came in the form of a Brahmin and killed Nagarjuna for his sin against Goddess Lakshmi, but might have praised his services to the poor and his sacrificial nature just to calm down the emotions of the people. Thus fell the jealous attempt of Nagarjunasiddha for the upliftment of the poor as a prey to the jealous

1 *Ibid*, p 64

activities of the fanatic vaishnavas

P Kutumbaiah opined that Siddha Nagarjuna received his knowledge in chemistry from the Arabians as he believed that he belonged to 9th c A D basing on the statement of Alberuni But it is baseless as we do not find anywhere that a siddha named Nagarjuna lived after fifth century A D Siddha Nagarjuna referred in *Navanathacaritra* and the Nagarjuna referred in the Jaggayyapeta belong to the 5th century A D It was about this Nagarjuna that Huen Tsang might have described as an adept in chemistry and alchemy. Hence Kutumbaiah's opinion that Nagarjuna was indebted to Jabir, who lived at the end of the eighth century A D. for his knowledge in chemistry cannot be acceptable.

PŪJYAPĀDA

Srisailam was a famous centre for the *siddhas, rasasiddhas* and the tantrics But unfortunately, no records are left to us to know about these saints and their achievements Scholars believe that Pūjyapāda was one among such scholars who lived at Srisailam Hitherto, Pūjyapāda was wellknown as a philosopher, poet and grammarian of ancient India. But the catalogues of various manuscript libraries inform us that he was also a scholar in medicine and composed many medical works He is said to have written the following works: *Nidānaratnāvaḷi, Vaidyakagrantha, Madanakāmaratna* and *Ratnākarādyausadhayōgagrantha.*[1]

Ugrādityācārya, a Jain physician of the early ninth century A D and who resided in the Vēngidēśa (Andhra kingdom) referred to Pūjyapādamuni in his work *Kalyāṇakāraka* He mentions that his work is composed on the basis of the work *Kaḷyāṇakāraka* written by Pūjyapādamuni Gōmatadēva, another Jain medical scholar pays his obeisance to Pūjyapāda in his owrk thus: "I offer obeisance to the feet of the great Jain grammarian, philosopher and the author of the book *Vaidyāmṛta,* the great sage Pūjyapāda" The author of *Rasaratnasamucchya* and the other medical scholars Cāmundarāya, Śubhacandra and Parśvapaṇḍita paid their regards to the learning and saintliness of Pūjyapāda, who is said to have driven away ill-health by his teachings, actions and by the composition of the medical treatise.

1 A checklist of skt.Med.Mss in India, IHM, Hyd , 1972, Nos. 503, 688, 420 & 687 respectively

As the works on the name *Kalyānakāraka* and *Vaidyāmrta* are not available in their original form or in complete, we get a doubt that whether his works were called on different names according to the nature and value of the works

The fact that Pūjyapāda was referred by Ugradityacarya (first half of 9th c.A D) gives clue to the fact that he belonged to the period not later than 8th c A D C D Srikantha Murthy opines that this great philosopher and physician belonged to A D 600 and was a great physician of Karnataka. But many scholars of Andhradesa believe that Pūjyapāda lived in Srisailam.[1] Anyway Andhra and Karnataka countries were identified as one in those days and still are having many common customs, traditions and cultural trends. Especially during the ancient and medieval times, Srisailam, Kolanupāka and Alampuram were the common religious centres to both the people of Andhra and Karnataka regions.

Pūjyapāda is said to have achieved many *siddhis* like *ākāśagamana* (walking in the space), *suvarnakaraṇa* (making of gold), etc

RĒVAṆASIDDHA

He was a religious preceptor who propagated Saivism in ancient Āndhradēśa According to the Saivite literature, God Śiva had five faces Among them, the central face is considered as the most important one From these five faces were born five *acaryas* in the *Kaliyuga* They are Rēvaṇasiddha, Maruḷasiddha, Ēkōrāma, Paṇḍitārādhya and Viśwārādhya They established five centres for the propaganda of Saivism They are[2]

1. Rēvanasiddha — Kolanupāka (A P)
2. Marulasiddha — Ujjani (Karnataka State)
3. Ēkōrāma — Himavatkēdāra (U.P.)
4. Paṇḍitārādhya — Srisailam (A P.)
5. Viśwārādhya — Varanasi (U.P)

Rēvaṇasiddha established the *Saivapitha* in Āndhradēśa,

1 *Bulletin of IIHM*, 1978, Vol VIII(1-4), p.8

2 K Sitaramaiah, *Kuruganti Vyasalahan*, Cadwala, 1961, p.55.

Kolanupaka as its centre and propagated the faith It seems that he tried to attract the attention of the common people towards Saivism by extending medical and other services. He is considered to be a great *siddha* and was perfect in the *Rasa* Siddha system of medicine. In the field of medicine, there is a work known as *"Vīrabhaṭṭīya"* and which is attributed to him [1] We do not know definitely whether it is his original work or a work which was written later and was attributed to him But we cannot totally reject the fact that he was a good Saiva physician, serving the people in the then society

Basavarāju, in his work Basavarājīyamu, referred to *"Rēvaṇakalpakam"*. Further research in Ayurvedic literature in Sanskrit is needed to identify whether *Rēvaṇakalpakam* referred by Basavarāju and *Vīrabhaṭṭīyam* are one and the same or not

Kuruganti Sitaramaiah writes that after spending some time in Kolanupaka, Rēvana Siddha shifted the centre from there to Balehonnur in Karnataka

UGRĀDITYĀCĀRYA

Ugrādityācārya was a medical scholar who belonged to *Samanatabhadra Sāmpradāya*, a Jain medical school He composed in Sanskrit, a famous medical treatise entitled *Kalyānakāraka*. In this work, the author mentioned that he was the desciple of Srinandi, who was honoured by Vishnuraja Parameswara This king can be identified with the Eastern Chalukya king Kali Vishnuvardhana or otherwise known as Vishnuvardhana V, who was a contemporary to the Rashtrakuta king Amoghavarsha I Kali Vishnuvardhana V ruled the Vengi kingdom during A D 846-848 *Kalyānakāraka*, the work of Ugrādityācārya, begins with the statement that "the science of medicine is divided into two parts, namely prevention and cure and gives at the end, a long discourse in Sanskrit prose on the uselessness of flesh diet, said to have been delivered by the author at the court of Amoghavarsha, where many learnedmen and doctors had assembled" The Rashtrakuta king Amoghavarsha ruled the kingdom for 66 years during A D.814-880 As

1 The manuscript copies of the work Virabhattiya are available in the Oriental Library, Mysore and in the Adayar Library, Madras They are in Sanskrit, but written in Telugu and a copy from Mysore Oriental Library is with Telugu Tika also.
A check-List of Sanskrit Medical Mss in India, CCRIHM, New Delhi, 1972, No 998, p 74.

he came to the throne at a tender age his cousin Karakasuvarnavarsha looked after the kingdom for some time. Karakasuvarnavarsha's sister Silamahadevi was given in marriage to Kalivishnuvardhana. The couple's son Gunaga Mummadi Vijayaditya led an expendition into the Rashtrakuta kingdom after the death of his father which was successfully driven back by Amoghavarsha After his defeat in the hands of the Rashtrakutas, the Eastern Chalukya king Vijayaditya maintained friendly relations with them Amoghavarsha was a great patron of letters He patronised the scholars like Mahaviracarya the author of *Ganitasarasangraha*, Sakatayana, the author of *Amoghavrtti* etc He himself was a great scholar and composed a work known as *Kavirajamarga*. He invited Ugrādityācārya to his court and held discussions with him in the assembly of many other medical scholars. Thus the facts that Ugrādityācārya's guru Srīnandi was honoured by Vishnuvardhana V (A D.646-648) and himself visited the court of Amoghavarsha reveal that he lived in the middle of the ninth century A.D.

About the place of the composition of his work, Ugraditya gives information that it was written in the caitya caves of Ramagiri located in the Trikaḷingadēśa of Vēgirājya There are two Ramagiris in Āndhradēśa, one in Karimnagar district and the other in the district of Visakhapatnam, both of which were well flourished Jaina centres in those days. That's why scholars like Veturi Sankarasastri settled it doubtfully that it might be either of these [1] But by the time of the composition of *Kalyāṇakāraka*, Telangana area was under the rule of the Rashtrakutas. As the author specifically mentioned that it was located in Vengi, it must be the Ramagiri which existed in Visakhapatnam district. The word 'Trikaḷinga' also is used here Historians identified the western province of Kalingadesa located to the west of Mahēndraparvata, to the north of Mahānandi and the birth place of the river Lāngulya as the *Trikaḷingadēśa*[2]. The kings who ruled the Vengi country were mentioned as the rulers of Vēngi rājya along with Trikalingadesa. Ugrāditya mentioned that the place was very beautiful and rich with herbal substances and a sacred place The eastern Chalukya king Vimaladitya (A.D.1011-1018) later added a caitya in 'Ramakonda' located in Ramatirtha of Visakhapatnam district.

Ugrādityācārya paid his obeisance to the early scholars such

1 V.Sankara Sastri, Ayurveda Itihasamu (Tel), Telugu Akademi, Hyd ,

2 K.Iswara Dutt, Pracinandhra Caritraka Bhugolamu, A P Sahitya Akademi, Hyd, 1979, p.169.

as Pūjyapāda, Samantabhadra and the ancient writers like Agnivesa, Caraka, Kasyapaputra and Bhikshu. He also referred to the other scholars mostly of the Deccan such as Patraswami, Siddhasena, Dasarathaguru, Meghanatha and Simhanadamuni He states their better contribution in their specialisation as

Pūjyapāda	*Śālākyatantra* (diseases of head)
Pātraswāmi	*Śalyatantra* (surgery)
Siddhasēna	*Viṣatantra* and *Bhūtavaidya* (Toxicology & Psychiatry)
Dasarathaguru	*Kāyacikitsa* (Treatment of common ailments of body)
Mēghanātha	*Kaumārabhrtya (Paediatrics)*
Simhanādamuni	*Rasāyana & Vājīkaraṇa* (Science of longivity & Science of Aphrodisiacs)

In *Kalyāṇakāraka*, the eight divisions of the medical science are explained as *Kāya*, *Bāla*, *Graha*, *Ūrdhwānga*, *Śalya*, *Damshtra*, *Jara*, and *Vrṣa* He explains the appropriateness of the names, *Vaidyasastra* and Ayurveda to the science of medicine thus "*Vidya* (knowledge) is the name given to the eye (perception) of good and exposed knowledge From vidya, is derived this great science This science is called *vaidya* by the etymologists and those who ponder over and study this science are also called *vaidyas*. This science is also called *veda* by taking a different meaning of the root indicating the true reality because it affords the benefit of understanding, reflection and investigation Those who know it add the prefix '*Ayus*' and give another name to the science" [1] He named his work as *Kalyāṇakāraka*, as this is the science intended for the promotion of the welfare and prosperity of the universe or the created life

As a scholar of Jain faith, he mainly endeavoured for the upheaval of the Jain principle, i.e., *ahimsa* (non-violence). Previously, the medical scholars such as Caraka and Susruta recommended animal substances in the treatment of certain diseases But Ugrādityācārya, who aimed at the promotion of welfare of all the living creatures, condemned the use of animal substances as they were to be derived after killing the animals He refuted the usage of such substances to avoid the cruelty towards the other creatures He did not accept even

1 B Rama Rao (Tr), Kalyanakaraka, *Bulletin of DHM*, 1965, III, p 210

the use of honey and prescribed jaggery in its place while administering the medicine to the patient He advocated and proved that these articles though useful for treatment, are not absolutely essential and can be substituted by many more powerful herbs and minerals In this respect also the title of his work can appropriately be justifiable

Kalyānakāraka consists of two parts with 25 chapters containing about 8000 verses. The first part consists of twenty chapters and the second one contains five chapters. At the end of his work, Ugrāditya added a supplement of two chapters with the names *Rishta* and *Hitahita*. With regard to his contribution to the science of medicine, he had given many new methods and types of treatments with mercury and other metallic compounds He stated that he added the useful ideas of the yogis. Thus we can find how the science of medicine started taking useful ideas from *yōga* such as the knowledge of the pulse, etc Another noteworthy point in his work is that though he was a Jain physician who gave importance to Jain tradition, he respected and described the propitiatory rites such as *santi*, *homa* and other ritual for the promotion of health and relief from disease[1] perhaps to respect the tradition and safeguard and promote the *dharma* in the society

B. MEDICAL SCIENTISTS OF MEDIEVAL ANDHRADESA

BĀHAṬĀCĀRYA

Among the most famous scholar-physicians of medieval Āndhradēśa, the name of Bāhatācārya can be placed in the forefront. He composed two medical treatises i.e., *Astanganighantu*, a medical lexicon and *Bāhatagrantha*, a work on therapeutics. A plan-leaf manuscript copy of *Aṣṭānganighaṇtu* is available in Saraswati Mahal Library, Tanjore.[1] The colophon that can be found in this copy informs us that it is written by Bāhaṭācārya. But the colophon of *Bāhaṭagrantha*, available in the Government Criental Manuscripts Library, Madras,[2] mentions that it is written by one Kārtikēya, son of Gauri. There is an usual practice to call some famous works by the name of the author as for example-*Carakam*, *Susrutam*, *Vagbhatam*, etc. In that way, the work

1 A Des. Cat Tel Mss T S M L No 984 (B 10796)

2 GOML, No 13177

by Bāhata can be called as *Bahatam* *Bāhatam* or *Bāhaṭagrantham* might have been written by Bāhatācarya, the author of "*Astānganighantu*" But due to some unknown reason, it was attributed to Lord Kārti-Kēya or Ṣaṇmukha, son of Gauri or Parvati

There is a possibility to think Bāhaṭācārya's first name might be Kārtikēya, son of Gauri Kārtikēya's father might have died much erlier, perhaps in Kartikeya's childhood Since he was brought up by his mother, he might have been called as "*Gaurīputra Kārtikēya*" He must be a Saivite scholar, who taught the subject to all without allowing anything in secrecy and for that reason he might have been called as Bāhaṭācārya The word *bahatam* means what which is open or undisguised' Kartikeya might have worked as an *adhyapaka* in one of the Saiva centres in Andhradesa

The Gaya inscription dated in the regnal period of Kakati Pratapa Rudra informs us that Gauri wife of Mallikārjuna Sūri got the '*Sradha*' rite done without any hindrance. In this record Mallikarjuna is said to be a great scholar and the guru to Pratapa Rudra Mallikarjuna is said to have the title "*Tribhuvana Vidyā Cakravarti*" Gauri also is mentioned as scholar capable of pleasing the *Vidvatjanas* (Scholars) in consideration and a good natured woman Perhaps her child might have been named as Kartikeya after the name of the son of Gauri and Mallikārjuna (Parvati and Siva) But we do not have any other source to prove this and it is merely an assumption Bāhata might have belonged to the close of the thirteenth century and the first quarter of fourteenth century, as we find references from his works and in the works of other scholars from the middle of 14th century onwards

Two copies of *Aṣṭānganighaṇṭu* are available (B.1 0795, 10796) in the Tanjore Saraswati Mahal Library The colophon in one of them runs thus *Itiśrīmat Bāhatācārya Viracitāyām aṣṭānghṛdaya samhitāyām aṣṭānganighaṇṭussamāptaḥ*". But this colophon seems to be mistakenly copied by the scribe. Instead of writing "*Itisrimat Bāhaṭācārya viracita Śrīmadaṣṭānganighaṇṭussamāptaḥ*" The word "*aṣṭāngahṛdayasamhitāyām*" is added unnecessarily It might be an error committed by the copyist *Aṣṭānghṛdaya samhita* is a treatise written by Vāgbhaṭācārya. One may doubt whether it is a part of "*Aṣṭāngahrdaya Samhita*" But there is no *nighaṇṭu* part dealing with the materia medica in Vāgbhaṭa's work Hence it can undoubtedly be stated that it is a scribe's mistake. In this work, Telugu names of the medical substances are explained in Sanskrit

Bāhaṭagrantham is a famous and popular medical work of medieval Āndhradēśa. It was considered to be a great work next to the works of the ancient *triad* Many scholar-physicians of this region mentioned in their works that they have studied *Bāhatagranthamu*, along with the work of Caraka, Susruta and Vagbhata The physician described in *Paramayogivilasamu* is mentioned as having in his hand. "*Bāhaṭapustakamu*"[1], "Granthamu" is popularly called as "pustakamu" in Telugu The work he had in his hand might be the work of Bahata In this work, besides the traditional scientific theory of *tridosa*, many new findings of his time were explained. Perhaps they might be his own innovations He explained the *aṣṭasthānaparīkṣa*, *rasausadhas* etc.

Bāhaṭagranthamu contains 9 chapters i.e , 1 *Nidāna yōga*, 2. *Kasāyayōga*, 3 *Pathyāpathya yōga*, 4 *Tailayōga*, 5. *Ghrtayōga*, 6. *Lēhyavargayōga*, 7. *Cūrṇavaṭikāyōga*, 8 *Auṣadhayōga*, and 9. *Rasayōga*. *Bāhaṭagrantham* explains many things in brief and is written in a simple style. The verse explaining the nadīpariksa mentions that the examination of the pulse should be done in the left side to the women and in the right side to the men. It gives scope to the rise of many questions with regard to the discrimination in *nidāna* shown between the male and the female patients In many scholastic works of medieval Āndhradēśa, we find references from this work. The verse starting with "*Ādau samastharōgēṣu*" which explains the *astasthānaparīkṣa* is taken by Indrakanti Vallabhācārya, the author of *Vaidyacintāmaṇi*[2] *Bhāvamiśra took a verse*[3] *which explains the purvarupa* (pre-monitory symptoms) of Kāsa (Tuberculosis) Sōmaya, the author of *Bhisag-varānjanam*, mentions that after thoroughly studying the *Bāhaṭagrantham* and after grasping its essence, he started writing his work[4] Muḍumbi Venkaṭācārya, the author of Telugu *Rasapradīpika* paid his obeisance to Bāhaṭa and others[5] He used the word "*Bāhaṭādulanella*" which means "all the scholars such as Bāhaṭa etc " He did not mention the names of others The scholar who translated Trimallabhaṭta's "*Śataslōki*" into Telugu verse form mentioned in the beginning of his work that he was going to translate the work which was previously

1 *Paramayogivilasamu*, p.450

2 *Vaidyacintamani*, I-1

3 *Bhavaprakasa*, I

4 *A Des Cat.Tel.Mss.* GOML, Vol XI, No24532456

5 *Ibid* No.2473

written by a sage who was profound scholar in *Bāhataśāstra*. It indicates the fact that in medieval Āndhradēśa, the science of medicine itself came to be known as *Bāhatasaśtramu* after the name of Bahata

The Sanskrit *Bāhatagranthah* is translated into Telugu verse form by Elakūci Bālasaraswati Mahōpādhyāya But it is not available now Balasaraswati mentions this fact in his Telugu literary work *Candrāpariṇayamu*.

BHOJARAJA

Bhōjarāja, the author of *Cārucaryā*, is mistakenly identified as Bhōjarāja of Dhārānagara who ruled at about 1035 A D But Bhōja belonged approximately to the first quarter of 13th c A D Like Sāyana, Lōlimbarāja and Pānakālarāya, the great scholar-physicians of medieval Āndhradēśa, Bhōjarāja also contributed much for the cultural development of medieval Āndhradēśa His famous work *Çārucaryā* with various aspects of daily regimen like cleanliness, dietetics and other habits including moral code for healthy living

Bhōjarāja was a great scholar in Sanskrit. There is a work in Sanskrit literature known as "*Rāmāyana Campū*" which is believed to have been written by king Bhōjaraja of Dhārānagara There are nearly 23 works which are attributed to king Bhōja But the scholars are doubtful about some of the works Among them, *Rāmāyana Campū* is the one. It is not completed by the author He left the Yuddhakānda incomplete due to some unknown reason. Afterwards, it is located in the present Karimnagar district. Scholars in Sanskrit observed that one could not make out the difference between the part written by the original author and the part that was completed by the latter [1] It was an usual custom in those days in India that if a work was not completed by the original author due to unexpected or untimely death, his son or his student used to complete the rest of the work. Śarabhārāja's medical work *Śarabharājīyamū* was completed by his renowned son Mādhava after the death of the former. There are plenty of examples of this type This work *Rāmāyaṇa Campū* became very popular in Āndhradēśa, Without studying it one cannot go to higher studies in Sanskrit. It was a compulsory study to the beginners in those days [2] If this assumption is correct, Bhōjarāja must have belonged to Śanagara or its surround-

1 M.Gopalareddi and Sujathareddi, *History of Sanskrit Literature,* p 73-39

2 Ibid, p 738

ings The Indian scholars took credit in writing any holy story or purana in their life-time, atleast at the setting time of their life Bhōjarāja might have started the writing of this work in his oldage and was not able to complete it in his life time With the view that *Rāmāyana Campū* is written by king Bhōja, the scholars hitherto believed that the Campu form of writing started appearing from 10th c A D They agreed that these works were written in significant number only after 13th century A D Especially this form of writing appeared in South India. Especially the Telugu poets who were accustomed to write on the *Sthalamahatmya*, *Vilasa* and *parinaya Kavyas* took up this form in their compositions [1] *Rāmāyaṇa Campū* is popularly known as *Bhōja Campū* It is in great popularity from the thirteenth century till today in Āndhradēśa It is an important text to the Sanskrit students even in Kannada and Tamil areas. This fact also supports the view that the author was a South Indian

Another work of much importance is *Cārucaryā* written by Bhōjarāja. It is a work dealing with *dinacarya* or daily regimen The author states that he compiled the work after collecting many verses and principles from various works religious, secular and Ayurvedic, for the benefit of princes and kings The last verse also indicates the aim of writing this work thus - "This work, *Cārucaryā* written by Bhōjabhūpa, for the benefit of the princes and the countiers, now ends "[2] Hence the author Bhōjarāja might be a court-physician. But it is an interesting thing to note that the work written for the benefit of the princes and courtiers does not deal with some topics like wines or qualities of meat. Exercise is not mentioned separately though the uses of the sword and its qualities are found mentioned. The topics which are mentioned in this work can be found in the *sūtrasthāna* of the Ayurvedic books Some medical scholars like Śrinivāsārya, the author of *Cikitsātilaka* explained the *dinacarya* and *ṛtucarya* in their works in detail whereas some others mentioned very vividly Srinivasarya explained the daily regimen and the seasonal regimen describing everything including food habits, cloth-

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1 M.Gopalareddi and Sujathareddi, *History of Sanskrit Literature*, p.727-28.

2 Sri Rama Rao, who studied different pal-leaf manuscript copie of this work and complied a comprehensive work, identified some of the verses found in other works which are both anterior and posterior to Carucarya. They are - 1. *Astangahrdaya*, 2 *Cikitsatilaka*, 3. *Susrutasamhita*, 4. *Anandakanda*, 5. *Ksemakutuhalm*, 6 *Astangasangraha*, 7. *Tambulamanjari*, 8 *Garudapurana*, 9 *Vishnupurana*, 10. *Manasollasa*, 11. *Parahita Samhita* and 12. *Bhavaprakasa*.
Rama Rao, B (ed), *Carucarya*, IIHM, Hyd., 1974, p xv

ing, quality of eating-plates, *tāmbūla,* etc Some of the verses can be found in both the works

The details of the subject dealt with in *Cārucaryā* are

1 On cleanliness or attending to the urges of nature,

2 Things to be seen first on getting up,

3 On cleaning teeth,

4 Oil-bath and massage,

5 Daily bath,

6 The religious acts to be performed after bath and clothing,

7 Wearing ornaments,

8 Wearing different flowers,

9 *Laxmīkara* and *alakshmikara,*

10 *Lēpādhikāra* (different types of unguents and their qualities, unguents for seasons, descriptions and qualities of ingredients like musk, saffron, etc),

11 Food,

12 Plates for taking food,

13 On betel leaves, etc ,

14 Miscellaneous (under this, items like drinks (cold drinks), fans, aid, shoes, umbrella and riding horses, etc are dealt with),

15 *Strisēva* and

16 *Nīti* (under this, there are a few verses on general conduct, physical actions and moral attitudes)

As in the case of Vemana's verses, in this work also, there seem to be many of the original verses left out and some other verses incorporated in the text by some learned scholars in different copies

The first and the last verses of the work inform us that it is compiled by Bhōjabhūpa But it seems that it is a later transformation of the word *Rāja* to *Bhūpa* by the scribes because the scribes who with wrong notion believed that Bhōjarāja, the king of Dharanagara a great patron of letters and also a poet, was the author of this work Or to popularise the work, one of the scribes might have consciously changed

the word *raja* as *bhupa*. Though there is no epigraphical evidence to establish the historicity of Bhojaraja, the fact that the manuscript copies of the work except a few are secured in South India, gives us an idea that it might have been written and studied extensively in South India It is translated into no other language except Telugu And it is quoted in Telugu works The first Telugu work that quoted a verse from Appana's *Cārucaryā*, is *Sakalanītisammatamu* which belonged to about A D 1400. Appana lived in the mid and later half of the fourteenth century and by this time, *Carucarya* of Bhoja might have been popular The wide popularity of the work might have necessitated its Telugu translation

B Rama Rao opines, "It is also probable that the book might have been composed by another Bhōja of Deccan and this may be the reason for the fact that the work is popular only in South India and it is not known in Western and Northern India."[1]

Who was the South Indian Bhōja ?

There was one Andhra Bhoja, who was a great scholar both in Sanskrit and Telugu He was referred by Maḍiki Singana in *Sakalanītisammatamu*.[2] Madiki Sigana, who belonged to 1400 A.D quotes twenty five verses from *Nītibhūṣana*, a Telugu work. They are under the following heads

1. *Āgamapālana* (rule of law)
2. *Prajāpālana* (ruling the people)
3. *Ādāyavyayam* (Income and expenditure)
4. *Rājanīti* (statecraft)
5. *Rājabhṛtyanīti* (conduct of royal officials)
6. *Sēvakanīti* (conduct of servants)
7. *Mantrarakṣaṇa* (guarding secrets)
8. *Daṇḍayātra* (undertaking an invasion)

Like *Cārucaryā*, this work also seems to be useful to both the rulling class and the people who wish to cultivate a cultured life in the then society and who seek to get employment in the administration

1 *Bulletin of IHM*, Vol I, (1&2), 1971, p.6

2 *Sakalanīti Sammatamu*, I-7.

A Sanskrit poet Bhōja is said to be a contemporary to Divākara Sūri, father of Lōlambarāja[1] Divākara Sūri belonged to A D 1299[2] *Bhōja Campū* and Bhōja's *Cārucaryā* are popular in Āndhradēśa from the thirteenth century only These two works might have been composed by the same author in the middle of the thirteenth century The author might be Bhōjarāja, the contemporary of the father of Lōlambarāja. In those days, Brahmin scholars in arts, letters and sciences and who were engaged in the administrative work added *Rāja* to their names. They were identified as *niyōgi* Brahmins There were many names of such Brahmin scholars suffixed with this word.

There was one Samanta Bhoja, who was a dignitary in the service of Kakatiya Ganapatideva and who participated in his southern expenditions. When Manumasiddhi II, the ruler of Nellore appealed to Ganapatideva for help to regain his lost kingdom, Ganapatideva sent a powerful army under Sāmanta Bhōja to the south According to Ekamranatha temple inscription, Samanta Bhoja was the son of Dachamantri and Vachamba By this, we understand that he was a niyogi Brahmin who gained the confidence of king Ganapatideva He was sent to the southern expedition on the request of Manumasiddhi through the representation of his poet Tikkana. The Nayanapalli inscription reveals the achievements of the Kakatiya army in Nellore. Bhoja fought a decisive battle at Kanchi against the combined forces of Dravida, Karnataka and of Vijayaganda Gopala in A D.1250 Bhoja granted a village named Kalattur and made provision for the worship of the God. He also made provision for the daily offerings to the god at Kalahasti.[3]

As Bhōja's name is prefixed with the word '*Samanta*' we can understand that he was a ruler of a small principality paying tribute to the king. But actually, he was only a commander of the Kakatiya forces and can be identified as an *amarnayaka* It seems that he took freedom from the king to rule as a *sāmanta*. As such we find his name as Bhōjabhūpa and Sāmanta Bhōja. Like many other scholars in medieval Āndhradēśa, he too seems to be a great scholar in many subjects especially in *dharmasastras* and wrote *Nītibhūshaṇa*, *Rāmāyaṇacampū*, *Cārucaryā*, etc The lifetime of this Bhōja also tallies with the composition of the works. Mantri Appana might have translated it in the early years of the fourteenth century since it is quoted by Maḍiki Singana who

1 Gopalareddi & Sujathareddi, *Op cit* p 28

2 *Ibid.* p.740

3 *IA*, XXI, p.197, *SII*, X-376

also belonged to the closure of the same century There is another work known as *Āyurvēda Sarwaswam* which is attributed to king Bhōja But nothing is known about it

Thus it can be concluded that Bhōjarāja, the author of *Cārucaryā* and *Rāmāyaṇacampū* is not identical with the Bhoja of Dharanagara These books are mistakenly attributed to king Bhoja due to the similarity of the names Though it happened by the mistaken view, it is reallly regretable and should be rectified. Bhōjarāja, the author of *Nītibhūṣana* and the contemporary to Divākarasūri and Ganapatideva must be the author of *Cārucaryā*. The nature of the works is identical The nature of his works indicates the fact that he might be one of the advisors of the king or princes. As his last work *Rāmāyaṇacampū* is completed first by Sanagaram Laxmaṇasūri and *Cārucaryā* got much popularity in the Telangana area of Andhradesa, we can conclude that Āndhra Bhōja belonged to the Telangana region He might have composed this work on the request of Ganapatideva in his early life when he was at the court of the king. Like many other medical scholars of medieval Āndhradēśa, he too seems to be a great scholar in many subjects especially in the dharmasastras

Translation:

In the beginning, the scholars in medicine used to compose their works in Sanskrit only After sometime, especially from the fourteenth century onwards, some Telugu works began to appear. *Carucarya* of Mantri Appana is the first one in Telugu. It is a concise poetical form in Telugu to Bhōja's *Cārucaryā* written in Sanskrit. The colophon of the Telugu work mentions that Appana was the son of Nāgāmba and Gōvindācārya and the nephew of Singanāmātya. He belonged to Bharadwaja gotra and āpasthambasūtra. He composed this work in the first half of the fourteenth century He was later patronised by the Velama king Kumara Singabhupala (A.D 1384-1399).

SRIKANTHA PANDITA

Paramaśaivācārya Śrīkaṇṭha Paṇḍita was a great scholar in many sciences including Āyurvēda. He was popular more as a philosopher than as a scientist. However the Ayurvedic scholars consider his works as very authentic and scholarly and many great scholar-physicians were his students

Śrīkantha Pandita also called as Śrīkaṇṭhaśambhu wrote a

commentary to Saiva philosophy and established *Sivadvaita* school of philosophy Among many commentaries on Saiva philosophy Srikantha's commentary is the crest jewel His philosophy became famous as *Śivaviśisthādvaita, Śivādvaita, Śivadarśana* and *Śrikantha darśana* Appaya Dikṣita (A D 1502-93), an eminent scholar patronised by Venkata II of Aravidu dynasty of Vijayanagara was a staunch follower of Śrikanṭhamata He was even called as "*Śrikanthamata Pratisthāpanācārya*" (establisher of Srikantha's school of philosophy) Appaya Dīkṣita wrote a commentary to the saiva philosophy of Srikantha which is known as *Sivārkamani dipikā*. According to an inscription dated A D 1528-83 engraved in the Kalakantheswara temple at Adayapalem constructed by him, raised the *Srikanthabhasya* from obscurity to establish the superiority of Siva The object of writing *Sivarkamanidipika* was to teach the Srikanthabhasya to five hundred students.[1] Srikantha's services to the society in the field of medical aid was more admirable He was an eminent scholar in the science of medicine and composed medical treatises such as "Vaidyaka *Sārasangraha*" also called "*Hitōpadēśa*" and *Yōgarathnāvaḷi* In *Vaidyakasārasangraha*, Śrikantha mentioned himself as *Parama Śaivācārya*[2] The availability of the manuscript copies of the author in different parts of India[3] proves the fact that his works were considered as standard and were studied by the scholars all over the country Naṛahari Pandita or Narasimhapandita, a reputed scholar-physician of medieval Andhradesa was the student of Śrikantha Panḍita. The famous scholar-brothers Vidyāranya, Sāyana and Bhōganātha also were his students

With regard to the date of Srikantha there are different opinions Sri Halasyanatha Sastri writing preface to *Sivarkamanidipika* expressed the opinion that Srikantha was the fore-runner to all the *acharya purusas* i e Sankara, Rāmānuja, Madhwa etc Some scholars opined that he might have belonged to 11th century A D. In *Parāśaramādhaviya*,

1 *ARE* 395 of 1911

2 *A Check-list of Sanskrit Medical Manuscripts in India*, p 68, No 914

3 Three manuscript copies of *Hitopadesa* are available in the Rajasthan Oriental Research Institute, Jodhpur, Rajasthan (Ibid, p.26, No 329) Three copies of the same work, but entitled as *Vaidyakasara Sangraha* are available in the Bhandarkar Oriental Research Institute, Poona (Ibd p 68m No 914) One more co py entitled as *Vaidyakasarasangraha* and also mentioned as *Hitopadesa is* kept now in the Oriental Institute, Baroda (Ibid.)

Madhavacarya mentioned Srikantha as his guru Madhava Vidyaranya had three gurus - Vidyā Tīrtha, Bhāratī Tīrtha and Śrīkanṭha. Vidyā Tīrtha was considered by Madhava as an incornation of Mahēśwara Bharati Tirtha is referred to in Madhava's *Jaimini-nyāyamāla* as his *guru*. Srikantha might be his guru not only in Sivadvaita philosophy but also in the science of medicine There is a general opinion among the scholars that Madhava wrote a medical work, but it is not traced till now Sayana composed a medical treatise known as *Ayurveda-Sudhanidhi* The Bitragunta inscription[1] dated A D 1356 registered the grant made by Sangama II of vijayanagar dynasty on the request of his guru Srikantha to 28 brahmins after renaming it as Srikanthapura The author of this record was Bhoganatha Thus it is clear that Srikantha was a *diksaguru* to Sangama II and he was alive in A D 1356 He was a contemporary to the three scholar-brothers, but might be somewhat elder to them Hence his date can be regarded approximately as A.D. 1300-1360.

With regard to the place of Srikantha, some scholars opined that he belonged to the *Amardhakapitha* of Kāḷeśwaram which is situated in the present karimnagar district and some others believed that he lived in Srikalahasti[2] We find inscriptions referring to him in Sunkesari and Bitragunta both situated in the present Nellore district. Though as a religious preceptor and physician he toured all over the Vijayanagara empire, he might have resided in Nellore district as is evident from inscriptional evidence.

DĀMŌDARABHAṬTA

Dāmōdarabhaṭṭa was the author of "*Arogryacintamani*". The colophons at the end of some chapters follows thus "*Iti Sri Vishnubhaṭṭa Suta Pandita Dāmōdara viracitāyacintāmaṇi Samhitāyām Bālarōgādhyāyasthrimsah*"[3] Thus it is clear that Dāmōdarapaṇḍita was the son of Vishnubhaṭṭa On the basis of textual evidence, the editor writes, "He

1 *Vikaramasimhapuri Mandalasarwaswamu*, Nelluru Mandala Cantra, p.135.

2 S Venkata Ramaiah, *Pushpagiri Bharati*, Pushpagiri Bharati Prakasana Samithi, Tenali, 1985, p 16

3 The palm-leaf manuscript copies of his work are collected and published by the authorities of the Madias Oriental Mss. Library, Madras in 1951 under the editorship of S.Viswanatha Sarma. The work is not available infull.
Arogyacintamani, GOML, No LXXV, Madras, 1951, p 37, 106, 134, 172.

bases his text mainly on Vagbhatta's Verbatim We are not able to know anything about the author of this work He was a devout worshipper of Lord Siva Nothing is known about his time and place. It is clear that the author lived at such a time and place as to favour the use of *Mūlauṣadhas* in preference to *Rasa-auṣadhas* Again such medicines like *Madhusnūhi*, which were very popular in later centuries, are not mentioned in the text Many of the fruits familiar in North India are nowhere mentioned Hence it appears that the author was neither very ancient not very recent He was not a resident of North India [1] The materia medical mentioned in the work, the regimen prescribed, etc , reveal the fact that he belonged to South India Then the doubt arises whether he was a Maharashtrian, an Andhra or Kannadiga Sri Chilukuri Ramabhadrasastri writes that there is a sect of Brahmins in Maharashtra having the suffix "*Bhat*" at the end of their names [2] Sri Gurujada Ramamurthy Pantulu also expressed the same opinion. But we do not know on what basis they came to this conclusion Dr P V Parabrahma Sastri strongly condemned this opinion and mentioned that the word 'Bhat' is used as a suffix to the Brahmin scholars inrrespective of their regional affiliation [3]

Vidyātirtha was one of the *gurus* of Mādhava Vidyaranya In his work *Sarvadarśana Sangraha*, Mādhavācārya paid his regards to his *guru* Sarvajnaviṣnu, son of Sarjnapani [4] He was considered by Madhava as an incornation of Mahēśwara Sarvajnaviṣṇu, afterwards took renunciation and became the *Pithadhipati* of Kanchi Kamakoti on the name of "Vidyātirtha" After the renunciation of his *guru*, Vidyaranya mentioned him on this name only [5] Vidyatirtha along with Vidyaranya played a prominant part in the early History and expansion of the Vijayanagara empire [6] Sankarānanda, Bhāratitirtha, Vēdānta Dēśika, Mādhavācārya

1 *Ibid* pp 16

2 *Bharati*, Aug '86, p 35

3 *Bharati*, Aug'86, p 35

4 Parangatam Sakaladarsana sagaranam-atmocitartha caritarthita Srisarjnapani tanayam nikhilagamajnam-Sarvajnavisnu guru manavah mahatosmi.-
- *Sri Kuruganti* Sitaramaiah, *Sri Krurganti Vyasalahari*, Gadwal, 1961, p 85

5 Ibid, 0 86

6 T.V Mahalingam, *Administrative and Social Life under vijayanagara*, II, p.230

and Sāyana are the renowned desciples of Sarvajnavisnu or Vidyatirtha. Among them the first three are elder than the two brothers (Madhava and Sayana). Sankarānanda took renunciation at the feet of Bhāratītīrtha and not at that of Vidyātīrtha Vidyāranya received *Sanyāsāśrama* at the feet of Sankarānanda Hence it is clear that Sankarananda and Bhāratītīrtha were very much seniors to Vidyaranya. Though Vidyāranya received his education from Sarvajnavisnu, he received *tatvōpadēśa* from Śankarānanda. It reveals the fact that Madhavacarya and Sayanacarya received their education in *Vedas, Vedangas* and other *Sastras* when they were young. They might have completed their education long before the foundation of the Vijayanagara empire. They were eminent scholars at that time. Then the probable date of the completion of their education might be taken as A.D.1320. By that time, Sarvajnavisṇu might be at the age of 50 approximately, as he was also the *guru* to Madhava Vidyaranya in philosophical education. Then his birth date can be fixed at about A D.1270. He was alive in A D.1356 as can be seen from a record which informs us that king Bukka I went to Sringeri to pay his respect to Vidyatirtha.[1] By that time he might be quite old. Hence his life time can be considered approximately as A.D.1270-1360 Then the birth date of Dāmōdarabhaṭta, son of Sarvajnavisnubhatta[2] can be assumed as about A D 1295. He might have composed the medical treatise, *Ārōgyacintāmaṇi*, after acquiring much knowledge both in theory and practice He gave some new medicines which he discovered himself. The method of explaining the preparation of *Kasayas*, etc., with minute details also reveals the fact that he was not only a scholar in the science, but also an expert practitioner. He might have written it not before his middle age It suggests the fact that it was written in the second quarter of the fourteenth century or in the middle of that century The textual evidence also indicates the fact that it must have been written in the first half of the fourteenth century In the text, *mūlauṣadhis* were preferred to *rasauṣadhis* *Madhusnūhirasāyana* which was popular in the later part of the fourteenth century was not mentioned in this work. Hence it can be surmised that the work was written between A.D.1330-1350.

With regard to the textual subject, he mainly followed Vagbhata

1 E.C., IV, ed.46

2 *Sarvajna* is a title conferred on some scholars in medieval Andhradesa, who were well-versed in all Vedas, Vedangas and all the sastras. The Velama king Singabhupala also had the title Sarvajna and he was popularly known as *Sarvajna* Singa Bhupala.

to a large extent though not in toto He did not mention the names of *sthanas* like Vagbhata exactly In the beginning of the work, *pancakarma* and other things which are essential for preserving good health were given And then follow chapters on fever, dysentry, etc In the end, all things about the other *angas* have been dealt with fairly He gave in detail the *pratyausadhas*, which have not been mainly dealt with by the ancient authors He mentioned many new prescriptions and the way he explained the procedures of making various forms of medicines reveals his expertise in pharmacy Some of his verses are taken by Sarjnadhara, his son and by the author of *yogaratnakara* The editor of the published work mentions that he was corrected the errors "with the help of the works of Caraka, Susruta, Vagbhata, Sarjnadhara as well as *Yogaratnakara*" [1]

SĀRJNADHARA

Śārjnadhara, the author of *Śārjnadharaṣamhita* is famous as a great scholar who inaugurated a new era in the history of indigenous medicine. The colophon of his work mentions that he is the son of Dāmōdara His father Dāmōdarabhaṭṭa is the son of Visṇubhatta and a great scholar-physician He is the author of *Ārōgyacintāmaṇi* Thus it seems that their family is a family of medical scholars and physicians

Other than Śārjnadhara, the son of Dāmōdara and grandson of Visṇubhaṭṭa, there are two other scholars on this name One is the author of *Sarjnadharapaddhati*, the son of Dāmōdara and the grandson of Rāghavēndra Another is the author of *Sārjnadhara Triśati* and the son of Devaraja [2] Sarjnadhara, the author of *Sārjnadharapaddhati* was the resident of Gujarat His grandfather Raghavendra is mentioned as the guru of Hammiradeva, the ruler of Sakambhari country (Gujarat). Some scholars believed that the author of *Sarjnadharapaddhati* and *Samhita* were one and the same.[3] P V Sarma proved on the basis of the internal evidence that the author of *Sarjnadharapaddhati* is different from that of the *Samhita*. He mentions that their dates also do not tally [4] He opined that the author of the *Samhita* might have belonged to

1 *Arogyacintamani*, GOML, (Madras, 1951), Introduction, p.17

2 G I.Meulenbeld, Madhavanidana and Its Chief.

3 Ibid Commentary, p 428

4 P V.Sarma, Ayurved Ka Vaijnanik Itihas, pp 133-34

Maharashtra (Devagiri) [1] But it does not seem probable since his decision depended on the place of the commentators and referers But it is not proper to think that the author belonged to the native region of the commentators For example, we cannot state Kalidas belonged to Andhradesa on the basis of the fact that Mallinathasuri, the great commentator to Kalidasa's works belonged to this region *Sarjnadhara Samhita* gained fame within a short period and its copies spread throughout the country from the Himalayas to the *setu* Vopadeva might have written commentary to this work within a short period of the composition of the original work. Rudrabhaṭṭa, son of Vaidya Kōnēribhaṭṭa who belonged to Āndhra, also wrote a good commentary to this work The other commentaries are of Āḍhamalla and Kāśīrāma

P V.Sarma expresses his opinion that the author of *Sarjnadhara Samhita* belonged not earlier than the first half of the thirteenth century Many scholars believe that he belonged to the second half of the fourteenth century [2] This opinion seems to be the probable one Sarjnadhara's grandfather Viṣṇubhaṭṭa was a *vidyāguru* to Maḍhava Vidyaranya On the basis of it, a probable chronology is drawn [3] The probable birth date of Dāmōdara is traced as A.D.1295 Then the birth year of Sarjnadhara can be drawn as A.D.1320 Then Viṣṇubhaṭṭa was alive That's why, Dāmōdara gave his grand father's name i e , Śārjnapāni as Sarjnadhara to his son The colophon at the end of his work mentions tht he gained scholarship in medicine by serving the feet of Candrasekhara There is scope to believe that Candrasekhara, who became a pontiff in Sringeri matha after Vidyaranya, might be his guru

Thus the date of the composition of *Sarjnadhara Samhita* can be taken as the second half of the fourteenth century He was a great medical scholar in the Vijayanagara empire during the reign of Sangamas.

Sarjnadhara Samhita puts forth many new things in the field of medicine. Like Dāmōdarabhaṭṭa, Sarjnadhara also explained not only the diseases resulted due to the imbalance of the *tridosas* but also the diseases occured due to the *dosa* of the blood He explained a number of new diseases happened due to the insects and the germs The

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1 Ibid p.134

2 K.V Sarma, The siddha and Rasa Siddha Schools of Indian Medicine, *IJRM,* 18, p.24

3 *Supra.*

introduction of the examination of pulse in the disgnosis is said to be his contribution in Ayurvedic medicine The description of the application of mineral drugs, their calcination and purification, the application of poisonous drugs in certain diseases, the importance given to *pancakarma* are some other special features of his work He described a hair-removing cream that was popularly prepared and sold in the markets of this region under the name *Susarabhet* [1]

NARASIMHA PAṆḌITA

He was the author of a famous medical lexicon entitled *Rājanighantu* also called "*Nighanturāja*" and "*Abhidāna Cūḍāmaṇi*" Narasimha was also called as Narahari, and Narasimha Paṇḍita He was the son of Īśwara Sūri or Candīśwara, who belonged to *Kashmiradya Vamsa* and a resident of Simhapuri Hitherto all the scholars believed that Narasimhapandita was the resident of Kashmir But it is a hasty conclusion If they have studied the colophon carefully, they would have realised the fact that he belonged to Āndhradēśa, a student of Srikantha and a resident of Vikramasimhapuri

Simhapuri is another name to Nellore The name Simhapuri came to this place on account of a Jain monk Acarya Simhanandi It is because Simhanandi consecrated the idol of Jina, whose bearer is a lion, it is said, the town came to be known as Simhapuri [2] Sri Kavuturi Ramachandra Rao opined that the place came to be known as Simhapuri after the name of its founder, Simhavishnu, the Bṛhatpallava king (A D 575-600)[3]. Anyway, it is a wellknown fact that the town is called as Simhapuri and Vikramasimhapuri In this town, there is a temple to Lord Narasimha in Danduvari street The local deity of Nellore is Candiswar (also called Irukalamma) Thus we can see that the names of Narasimha and his father Caṇḍīśwara or Iswara Sūri are related to this place. They were the popular names there Narasimhapandita mentioned that his patron was Narasimha The scholars like Garbe, Keith and Dutt Sharma searched for the king who patronised this scholar But they did not find out the king with the name Narasimha ruling at the time the other scholars assumed i e., after A.D 1400 Hence they thought that

1 *Kridabhiramam*, vv. 7781

2 G.J Meulenbeld, Madhavanidana and Its Chief Commentary, (Leiden, 1974), p.406

3 A Des Cat.of San, Mss, GOML, MADRAS, Vol 23, No 13254, pp 8928-30

Simhadeva who ruled Kashmir from A D 1235 to 1250 [1] But it cannot be accepted since the date of its writing did not tally with it Narasimhapandita mentioned that he had consulted many works such as *Dhan- wantariya Nighantu*, *Madanapala Nighantu*, *Halayudha* and others, but states that he mainly followed the opinions of the *Dhanwantariyanighantu* [2] Then it is clear that the work is later than the *Madanapalanighantu* dated A D 1374 This fact rules out the opinion of Garbe, Keith and Dutt Sharma that his patron was Simhadeva of Kashmir.

Then the problem arises that who was the Narasimha that patronised Narasimhapandita Simhapuri or Vikramasimhapuri remained for some time under the rulers of Kalinga. In 14th century, two persons having the name Narasimhadeva ruled Orissa The kings of this dynasty were famous for their munificent activities. They received scholars from various place and patronised them in their kingdom They granted lands and villages to the Brahmin scholars That's why scholars from various parts of the country came to their kingdom and settled there. Especially, after the establishment of the Mahammadan rule in North India, many scholars started coming to the South for patronage and for the protection and propagation of their faith in the South. Among them the Kashmir Brahmin sect was one. These Brahmins propagated Kashmira Saivism in Andhradesa. Temples were built for Kashmira Rudreswara in the fourteenth century. Druppalli inscription[3] dated A.D 1306, registers a grant made by Bollamaraju and Rangappa Rudradeva to God Kashmira Rudreswara Narasimhapandita's forefathers might have belonged to Kashmira Saiva school of philosophy as he is mentioned in the colophon as belonging to Kashmiradyavamsacaryaparamparanvaya. Among the five schools of Saivism in Andhradesa, it was one. Narasimha or Narahari mentions that his guru is Srikantha. Let us observe the colophon at the end of the first chapter which forms a source of information supporting the above opinion:

Iti Srivaidyapathi murdanya ratnabharana srimadiswara surisunu Srikantha caranaravinda sevasevakarajahamsa Sri Kashmiradyavamsacarya paramparanvaya Srinarasimhapandita viracite

1 G.J.Menlenbeld, Madhavanidana and its chief commentary, (Leiden, 1974), p.406

2 A Des.cat.Skt.MSS.GOML, Madras, Vol.23, No.13254 pp.8928-30

3 *Sasanasamputi*, (Tel), Pts.1&2, Saraswatinilayam, Hyderabad, 1973, pp.251-57.

nighanturājāpara nāmadhēya paryāyavati abhidāna cūdāmani anupādi vargah prathamah.[1]

Thus this colophon makes it clear that Narasimhapandita, the son of Iswarasuri and the desciple of Srikantha, wrote the work *Abhidanacudamani* also called *Nighanturaja* It also informs us that he belonged to a family which followed *Kashmiradyasaivism* and he had the title *Vaidyapatimurdanyarathabharanalamkara*

Another colophon which appears at the end of the sixteenth chapter runs thus *iti Srivaidyapaja rajahamsa Srimadiswara Surisunu Srimadamrtakara gadasulalamkara carana kamala nisyandana prasada makarandaswadaniya sundarendira vedacitta sutkara sri kashmirādyavamśācara parāmparanvaya śrī Narasimhapandita viracita nighanturājāparanāma paryāyavati bhōjyavargāpara nāma dhānyavargah* " Narasimha is mentioned here as one who is blessed by the grace of Lord Dhanwantari (Amrtakara) and Hariharanātha (Gadāsūlālamkāra) one who wears *gada* and *śūla*, the weapons which represent Vishnu and Shiva respectively) Thus this colophon informs us that Narasimhapandita had an *Amrtahasta* and is blessed by the grace of Dhanwantari and Hariharānatha Hariharanātha cult originated in Āndhradēsā from Vikramasimhapuri (Nellore dt) in the eleventh century There is a temple in Vikramasimhapuri for Lord Hariharanātha He is engraved as wearing *gada* and *śūla*

Thus we can say that Narasimhapandita, the author of *Rājanighantu*, or *Abhidānacūdāmani*, was the resident of Simhapuri or Vikramasimhapuri and hailed from a Brahmin family which followed traditionally the *Kashmirādya* Saivism He was the desciple of Srikantha,

1 This colophon informs us that Nrsihapandita had the title *Vaidyapatimurdanya ratnabharanalamkara*, which means a crestjewel among the scholar-physicians It further means. *Srimadiswarasuri sunu* - the son of Iswarasuri
Srikanthasaranaravinda sevasevaka rajahamsa - the best among the people who served the feet of Srikantha.
Srikashmiradyavamsacarya paramparanvaya - one who is a descendent of a family which follows Kashmiradya Saivism as its family faith
Nrsimhapanditaviacita -written by Nrsimhapandita
Ni ghanturajaparanamadheya - having another name as nighanturaja
paryayavati - containing synonyms (to the medical substances)
abhidanacudamanu - in Abhidanacudamani
anu padivargah prathamah - the first chapter is *anupadivargam*
A Des. Cat. Skt.Mss.GOML, No.13254, pp.8829-30.

who was also a great scholar in Āyurvēda Śrikantha followed *suddha* saivism Though Narasimha is said to have belonged to *Kashmiradyavamsacaraparampara*, he followed his own path in religious views He paid his obeisance to Hariharanātha along with Siva and Dhanwantari (an *avatāra* of Vishnu)

According to Filliozat, *Rājanighantu* dates from the fourteenth century, Gode opines that it is written at about A D 1450 T Chowdhury assumes that the work was written about A D 1400 It is supported by Meulenbeld. The textual evidence proves that it was written only after *Madanapālanighantu* which was written in A D 1374 Narasimha's *guru* Srikantha also belonged to this period If Vidyaranya, sayana and Bhōganātha were his seniors, his date of taking instruction at the feet of Śrikantha could be placed in the first half of the fourteenth century The Bitragunta inscription[2] informs us that Srikantha was alive in A D 1356

Narasimha's patron must be Narasimha IV who ruled Kalinga between A D 1378-1409. Narasimha III ruled the kingdom of Kalinga between A D 1327-1353. But he must not be the king who patronised Narasimhapandita, since we found that the author followed *Madanapālanighantu* which was written in A D 1374 Hence it is clear that he was patronised by Narasimha IV During his reign, the Velama king of Racakonda and the Reddi kings of Kondavidu led expeditions on the Kalinga kingdom and occupied some parts of Andhra region which were previously captured by the Kalinga kings It seems that in A D.1386, Nellore was captured by the Reddi kings At the end of his reign, Narasimha IV lost many parts of his empire Hence it is probable to think that Narasimhapandita might have written his work *Rajanighantu* before A D 1386 There seems not much gap between the writing of *Madanapālanighantu* and *Rājanighantu*. It makes us think that *Madanapālanighantu* became famous soon after its origin, especially in Āndhradēśa, the place of its inception and Narasimhapandita might be also in touch with its author He might have written *Rājanighantu* approximately between A.D.1380-86, when Narasimhadeva IV was ruling the kingdom

Narasimhapandita wrote two other medical works i.e., *Gunasārasamuccaya*[1] *and Vāgbhatamandanam*[2]. His three medical (Sanskrit) works gained popularity within a short period. Especially

1 OLM. 5198.

2 *Ibid.* A 101.

Rājanighantu was very much favoured by the physicians all over the country The palm-leaf manuscript copies of this work can be found available throughout India This work contains new medical substances which were not mentioned in the previous works such as *Dhanwantarīya nighantu* and *Madanapālanighantu* *Gunasārasamuccaya* is also a work on materia medica *Vāghbhatamandanam* is a commentary on *Astāngahrdaya Sangraha* of Vagbhatta The copies of these works are found available in Telugu and Sanskrit scripts The copies of *Rājanighantu* or *Abhidānacūdāmani* are available in Telugu, Kannada and Nandinagari scripts It indicates the wide popularity of the works of Narasimhapandita

VISHNUDĒVA

He was the author of *Rasarājalaxmi*, a work on *Rasa* system of medicine He gave references from *Rasārnava* and *Kākacandēśwaratantram* He referred to the siddhas like Nagarjuna, Vyadi, Swacchanda Bhairava, Govinda Bhagavatpadacarya, etc A palm-leaf manuscript copy of this work is available in the Tanjore Saraswat Mahal Library,[1] written in Devanagari script He was a royal-physician to king Bukkaraya of the Vijayanagara Empire As he is believed to have belonged to the fourteenth century, he might have been patronised by king Bukka I (A D 1355-77) and a contemporary to Nityanathasiddha, Srikantha Pandita, Madhavacarya and Sayanacarya *Rasarajalaxmi* is a work on therapeutics

Visnudēva described the symptoms of various diseases and gave prescriptions to them He explained the methods of preparation of the *rasa* drugs in various stages

LOLAMBARAJA

It was a common practice in medieval Andhra that scholars competing to get proficiency in many sciences and arts Some people satisfied with getting excellency in one art and learning the subsidiary subjects which would be useful to them in their way But some scholars like Lōlambarāja tried to get proficiency in diverse subjects Lōlambarāja was a scholar in Ayurveda, a poet, a musician, a war-physician and at the end settled as an administrator, ruling the Murasanadu (a region in Tamilnadu)

The catalogues of the oriental manuscripts libraries inform us

that he was the author of two kavyas, i e, *Harivilāsa* and *Sundaradamodaram*[1] and medical works *Vaidyajīvana*,[2], *Vaidyavatamsa*[3] and *Camatkāracintāmaṇi*[4] In South Indian catalogues, his work *Vaidyajīvana* can be found mentioned as *Sadvaidyajivana*[5] The manuscript copies of this medical work can be found available throughout the country. It proves the fact that it had great popularity in the country As the author did not give much information about his personal life, there arose many doubts about his place and data In the numerous manuscript copies of *Vaidyajivana*, we find deviation in the meagre information given in the work Added to this, there appeared many interpolations and scribal mistakes in some of the copies It gave scope to many doubts and some scholars like Bhave, Velankar, Pangarkar, etc believed that Lolambaraja lived in the sixteenth century and early seventeenth century.[6] Veturi Sankara Sastri fixed the date of Lōlambarāja as A D.1557.[7] But he had not given any reason on which he based his opinion. P V.Sharma opined that he belonged to the first quarter of the seventeenth century[8] This decision is made on the opinion that Lolambaraja referred some verses from *Bhāvaprakāśa*. But it is noticed that the authors of *Lōlambarājīyamu*, *Bhāvaprakāśa*, *Vaidyacintāmaṇi*, *Cikitsātilaka*, etc took many verses from a common source probably from *Bāhaṭagrantha*, a work of 13th century A D. P K.Gode doubted whether there lived two persons on the name of Lōlambarāja, one being a mere poet who composed *Harivilāsakāvya* in A.D 1583 and the other, a medical scholar who lived before A.D.1600. He gave the evidences collected dividing them into two sections thus·[9]

1 M Suryanarayana Sastri, *History of Sanskrit Literature*, p

2 *A Checklist of Skt. Med. Mss.*, p 65, No 883.

3 Ibid , p 72, No.958

4 Ibid, p.14, No.168

5 Ibid, p.54, No.717

6 P.K.Gode, Lolimbaraja and his works, *Indian culture*, Vol VII, pp.453-54.

7 V.Sankara Sastri, *Ayurveda Itihasamu*, Telugu Akademi, Hyd., 1987, p 179.

8 P.V.Sharma, *Ayurved Ka Vaijnanik Itihas*, p.122.

9 P K.Gode, Lolimbaraja and His Works, *Indian Culture*, Vol VII, pp.455-56.

Lolimbaraja I	Lolimbaraja II
(1) Author of Harivilāsakāvyam HK	(1) Author of the following works (i) Vaidyajīvana = VJ (ii) Vaidyavatamsa = VT (iii) Camatkāracintāmaṇi = CC (iv) Ratnakaḷācaritra = RC and other Marathi works.
(2) Composed HK in A D 1583 The verse recording the chronogram for this date is found in two MSS of HK, one of them being copied in A D 1622	(2) The following chronology of the MSS of this author is available A D 1608-MS of VJ A D.1613-MS of VJ-Comm of Dāmōdara A D 1651-MS of RC(IO MS) A D.1674-Harinatha composed comm on VJ. A D 1766-MS of Rudrabhaṭṭa's comm on VJ.
(3) In the HK the author refers to him only as "Lōlimbarāja Kavinayāka" in the concluding verse of every sarga in which he also states that he composed the poem HK by order of king Hari	(3) The parentage of this author is given in CC as Divākarapaṇḍita-sūnu and in the VJ (in the text & in the colophon)
(4) MSS of HK are dated as follows A.D 1622 - No 204 of 1879-80 A D.1624 - No 78 of 1871-72	(4) No reference to the patron king is found in the works VJ, VT, CC, RC This omission stands in vivid contrast with the name of the king Hari referred to many times in HK of Lōlimbarāja I
(5) Except the name Lōlimbarāja, the HK gives no information about the author. Verses 96 & 97 referring to the poet as Ratnakaḷāramaṇa are spurious	(5) Ratnakala supposed to be the wife of this author is referred to in the RC which bears her name in the VJ in which she is addressed by name in some verses and in the Marathi work Lōlimbarāja akhyan, in which our author is called Kavi-patshah.

In the Vaidyavatamsa, the author calls himself Kavikulasultan as also Kavipatashah (v 155)

(6) Verses 96 & 97 at the end of the printed edition of the HK are spurious as they are not found in any of the 8th MSS of HK examined by me On the contrary, the verses recording the geneology of the patron of our author are supported by the following MSS -
(i) MS referred to in No.468 of 1884-87
(ii) No.377 of 1884-87 which records the date of composition, viz., A D 1583
(iii) MS referred to by the editor of the Kavyamala Edition of the HK in the footnote at the end of the poem
(iv) Tanjore MS No 3858 contains the verse *Srīmān Lāmarasō*, etc

(6) The ref to the place Saptasrnga is found in verse 2 of VJ (this may be the Saptasṛnga to the north of Nasik) This author belonged to the Maharashtra The commentator Harinatha (A D 1674) having no knowledge of the Saptasrnga hill near Nasik, wrongly explains the expression "*Saptasrngaspadam*" as "*Saptasṛngē Himālayē ēva āspadam sthānam yasyatat*" (fol 4 of MS 913 of 1887-91) Rudrabhaṭṭa explains the expression as "*Saptasṛngākhyaḥ parvataḥ*" etc (fol 3 of MS No 463 of 1895-98)

(7) There is no evidence in the HK to prove that its author belonged to the Maharashtra On the contrary the patron king of this author hailed from a place called Gayācalagiri This king's geneaology is as follows:- Hari - Lāmarasa Ravipaṇḍita (m.Yelambika) son Hari (patron of the author of the HK). This line belonged to *Maunibhārgavakula* which is called a *dwijakula*

In the colophon of *Harivilasa*, the author introduces himself as the son of Sūrya and the court poet of king Harihara. In the history of

Sanskrit literature, we find that Lōlambarāja's father was the contemporary to Bhōja [1] This Bhōja can be identified as Āndhra Bhōja, referred by Maḍiki Singana in *Sakalanīti Sammatamu* He was the author of Sanskrit *Cārucaryā*, a work on health and hygiene He led the southern expeditions of Ganapatideva in A D 1250 Sūrya-paṇḍita or Divākarasūri belonged to A D 1299 as referred in the History of Sanskrit Literature [2] He might be very much junior to Bhōja Lōlambarāja mentioned that he composed *Harivilāsa* on the order of the king Harihara King Harihara, along with his brother Bukkaraya, founded the Vijayanagara empire with the blessings of Mādhava Vidyāraṇya in A D 1336 He ruled the kingdom during A D 1336-56 Hence we can say that Lōlambarāja, the author of *Harivilasa* lived in the 14th C A D and his approximate date can be surmised as A.D.1300-1360.

The manuscript copies of the medical works of Lolambaraja also did not give much information except the fact that he was the husband of Ratnakaḷa (Ratnakaḷāramaṇa) the medical works of Lōlambarāja included in the catalogues are *Vaidyajīvana, Sadvaidyajīvana, Lōlambarājīyamu, Ratnakalacaritra, Vaidyavatamsa* and *Camatkāracintāmaṇi* The first three are the different names with which his work *Vaidyajīvana* was called The texts of the other works are to be examined. *Ratnakaḷācaritra* ends with the line. "*iti Śrīlōlimbarājākhya vaidyajīvana sampūrṇam* " It is a translation into Marathi to the Sanskrit work *Vaidyajīvana*. *Vaidyavatamsa* did not give the information with regard to the parentage of the author It contains altogether 155 stanzas There is a description of tobacco in 7 stanzas which seems to be a later interpolation as tobacco entered India in the seventeenth century About *Camatkāracintāmaṇi*, the information is given thus. "it is a work on practice of medicine by Lōlimbarāja, son of Divākarapaṇḍita".[3]

Now let us observe the *magnum opus* of Lōlambarāja i e, *Vaidyajīvana*. In the South, it is widely Known as *Sadvaidyajīvana* or *Lōlambarājīya*. A number of manuscript copies of the work are found available through out the country. The name of Lolambaraja was written as Lōlimbarāja in the manuscripts available in the northen part of the country. 'Lōlamba' literally means a pendulum There was a place namely Nōlambavāḍi consisting of Tumkur, Chittaldurg and south of the

1 Dr.M.Gopalareddi & Sujatha reddi, *Hist of Skt. Lit.*, p.328

2 *Ibid*, p.740

3 P.KGode, op.cit., pp450-51

Anatapur district in the 9th and 10th centuries [1] He might have come from this place which is nearer to Morasanāḍu Nōlamba transforming into *Lōlamba* is quite probable as the illiterate people in the villages pronounce 'la' for 'na' But we are not sure of this fact Anyway this name is a rare one

Lōlambarāja paid his regards to Divākara, from whom he got his medical knowledge in verse 3 of Cikitsāprakaraṇa of *Vaidyajīvana* It reveals the fact that he belonged to a family of physicians. Usually, the epithet 'paṇḍita' was used at the end of the names of physicians during the ancient and medieval days in Āndhradēśa Divākara and Sūrya are the two names of the Sun God. Sūrya or Sūraya was a common name that can be found in the inscriptions of the day Hence it is clear that Lōlambarāja, the author of *Harivilāsa* and *Lōlambarāja*, the author of the medical works such as *Vaidyajīvana* and *Camatkāracintāmaṇi* were not the two different persons He was the son of Sūrya or Divākarapaṇḍita

Many commentaries were written to *Vaidyajīvana* of Lōlambarāja. Among them, the commentaries by Rudrabhaṭṭa, Harināṭha Krishna paṇḍita and Dāmōdara were very popular and can be found available in many manuscript libraries A copy of the commentary written by Rudrabhaṭṭa, available in Madras Oriental Manuscripts Library informs us that Rudrabhaṭṭa's father Vaidya Kōnēribhaṭṭa was a doctor in the court of Khān Khān and Rudrabhaṭṭa himself served under Mirkhan P K Gode received this information from the *Catalogus Catalogorum* Library, Madras, and concluded thus. "If the identity of these two khanas is proved, we may have some external datum for Lolimbaraja's date limits "[2]

During the reign of early rulers of Vijayanagara, there were no cordial relations between the Hindus and the Muslims in the empire. The efforts to make use of the talents and abilities of the Muslim generals who settled here and became loyal servants were first made by Devaraya I and Devaraya II. They appointed the Muslim generals as trainers of their troops and commanders of the army. Khān Khān Oḍeyar was one among them and he received a fiefdom from Devaraya II [3] Hence it is sure that Vaidya Kōneribhaṭṭa, doctor of Khan Khan

1 K Iswara Dutt, *Pracinandhra Caritraka Bhugolamu*, p.194

2 P K Gode, *op.cit.*, p.459

3 *Vijnanasarwaswamu-Telugu Samskriti*, p.19.

belonged to the regnal period of Devaraya II i e , A D.1423-1446 His son Rudrabhaṭṭa's date can be approximately fixed at about A D 1450 or 1460 There was exactly 100 years of gap between Lōlambarāja, the author of *Vaidyajīvana* (A D 1336-56) and Rudrabhaṭṭa, the commentator Thus the clue given by Rudrabhaṭṭa clears the mist hanging over the subject

Place·

Many scholars of our times believe that Lōlambarāja belonged to Junnar in Maharashtra The reason for such an opinion is that he paid his obeisance to Goddess Bhārgavi having 18 hands and seated on Saptaśṛnga hill [1] Scholars like P K Gode, P.V Sharma, etc. opined that this place might be "Saptaśṛnga to the north of Nasik, where an image of the Goddess with 12 feet height and with 18 arms can be seen [2] The facts that Lōlambarāja was patronised by Harihara Raya of Vijayanagara, his father being mentioned as the contemporary of Āndhra Bhōja and the early commentator Rudrabhaṭṭa belonging to this region make us believe that Lōlambarāja belonged to Andhra region He might have gone on a pilgrimage to Saptaśṛnga hill and was impressed by the Goddess. It seems that he visited many places. He described the natural beauty and grandeur of the region on the shore of Narmada in a verse in *Sadvaidyajīvana* [3] A verse in the same work reveals the fact that he was a ruler of a small principality named Murasa (nāḍu). It can be identified as the Murasa or Morasa located in the north of the North Arcot district leading to the frontiers of the Mysore state.[4] The poet Śrīnātha also visited this region and described the culture of the people of this region.[5] Lōlimbaraja might have got it as an amaram from Harihara Raya after composing *Harivilāsa kāvya*.

Lōlambarāja must be a military physician attending the war camps in his early days. In Sadvaidyajīvana, Lōlamba described himself as a *vaidyaka*, *kavi* and musician. Though his medical works and kavyas are available, we do not find any of his works on music. Perhaps he might not have written any musical work though he had proficiency in

1 *VJ*, Cikitsaprakarana, v.s.

2 P.K.Gode, *op.cit.*, p.450.

3 *Sadvaidyajivana*, K.Viravenkaiah & Sons, Rajahmundry, 1957, p.40

4 K.Iswara Dutt, *Pracinandhra Caritraka Bhugolamu*, p.273

5 V.Prabhakara Sastri (com), *Catupadyamanjari*, p.18

it He described Ratnakaḷa as an expert in drama, music and literary composition [1]

Religious Faith

Lōlambarāja paid his obeisance to Lord Śiva, Nārāyaṇa, Bhārgavi (Pārvati) and his father Divākara in the beginning verses of Cikitsāprakaraṇa [2] It indicates the fact that he followed the Hariharanātha cult In Nidānaprakaraṇa, he paid his regards to Śrīdhanwantari [3] He advised the physicians to worship Lord Ganēśa before starting the preparation of drugs [4]

About the Text

Sadvaidyajīvana contains the following things in order 1 *Aṣṭasthānaparīkṣas* (eightfold examination), 2 *Nidānaprakaraṇa* (Daignosis), 3. *Dravyasuddhiprakaraṇa* (purificatory methods of drug substances), 4 *Cikitsāprakaraṇa* (Treatment) - a) Jwaracikitsā Prakaraṇa, b) Atisāra prakaraṇa, c) Grahaṇīcikitsā, d) Kāsaśwāsa Cikitsa, e) Sthrīrōgacikitsa and f) Prakīrṇaprakaraṇa.

Among the *aṣṭasthāna parīkṣas*, the examination of the pulse is vividly explained The first verse can be seen as taken from *Bāhaṭagrantha* of Bāhaṭācārya It was taken by almost all the renowned scholars of Andhradēśa In the nidānaprakaraṇa, he explained how to diagnose the various kinds of fevers and disorders both physical and mental At the end of this prakaraṇa, Lōlambarāja explained the things to be done by a phy sician before starting his work as a physician, Before starting his professional activities, a physician was supposed to worship Śrīdhanwantari keeping in mind the good qualities of the divine physician

Lōlambarāja's work *Sadvaidyajīvana* gives us a glimpse into the medical ethics prevailed in medieval Andhradēśa He said that a physician should divide his medicines into five units out of which one unit should be utilized for the treatment of the poor, 1 unit for his friends (or near and dear), 1 unit for sale to meet the expenditure of collection of medicinal goods and preparation of drugs, 1 unit to set apart for

1 *Sadvaidyajīvanam*, op cit , p 86

2 Ibid, Cikitsaprakarana, vv.1-3

3 Ibid, Nidanaprakarana, vv.131-134

4 Ibid, vv.128-30

Śrīdhanwantari (to give it freely to another physician who comes to him in need for the use of a patient) and the last unit to utilize for his ownself as a remuneration to his medical services Then he explained the characteristics of a good physician and of a quack In his opinion, a good physician is one who is endowed with purity of mind, ability, good character, good knowledge in prognosis, knowledge in all sciences, regard to religion, good heart, a lucky hand and talent in conversation and above all a perfect knowledge in the science of medicine [1] A physician who had no perfect knowledge in diagnosis should be treated as an outcaste and should be discarded by the people.[2] A physician who was evil-minded, short-tempered, dirty in dressing, who lost his wife in middle age and who fixed his fees before starting the treatment, should be discarded [3] According to Lōlambarāja, a person should start his medical profession after attaining perfect practical as well as theoretical knowledge in the science of medicine [4]

In the last verse of nidānaprakaraṇa, he described the characteristics of a teacher in medicine A wise man with good knowledge in Ayurveda, always speaking truth, free from anger, skilled in the art of healing, having good knowledge in pulse-examination and medical formulas, skilled in preparing various mechanical contrivances (to prepare medicines), attained self-satisfaction and kind-hearted was regarded as a proper person to choose as a guru to take instruction in the science of medicine [5]

In the dravyasuddhiprakaraṇa,[6] the purificatory methods of *tāḷaka* (yellow sulphuret of arsenic), *maṇiśila* (red sulphuret of arsenic), *kafari* (?), *nābhi* (sconite), *nēpāla*(seeds of croton tiglium), *viṣamuṣṭi* (the seeds of nux vomica), *dattūra* (the seeds od datura stramonium), *rasa* (mercury), *gandhaka* (sulphur) and *ingilīka* (vermilion)

. Next follows the Cikitsāprakaraṇa, the main chapter of the work. The verses can be found addressed to Ratnakaḷa, who is believed to be his lover. In those days, composing a scientific work in the form of a

1 *Sadvaidyajivana*, Nidanaprakarana, v.139, p 29

2 *Sadvaidyajivana*, p 30

3 *Ibid* , vv 142, 143

4 *Ibid.*, v.144

5 *Ibid* , v 145, p 31

6 *Ibid.*, pp 32-34

kavya is a new experiment That's why, naturally he doubted that some scholars might dislike his experiment As such, he writes a verse indicating the following meaning "knowing well that some people may dislike it, I am composing this medical work as a *kavya* as I believe that it wins the hearts of *rasajnas* (people having good taste)" [1] In another verse, he says, "As people try to expose their financial position in the society as above their level, inspite of a fear of theft, I am desirous of writing this work though I am aware of the prevalence of evil-minded scholars " Here we can easily grasp out that he spoke of the probable theft from his work (without acknowledging it) by the other scholars It was an usual custom in those days to keep the new inventions or other valuable healing formulas in secrecy and they used to say that the efficacy of the medicine would disappear if revealed openly. But Lōlambarāja was not such a narrow-minded scholar. He explained many valuable prescriptions against various disorders of body and mind which could be easily prepared at home

Lōlambarāja was undoubtedly an outstanding scholar with liberal views and a great physician with good moral idealogy He started his life as a physician and rose to the position of a war-physician, a commander and a fief-holder under the Vijayanagara rulers He had great belief in the professional ethics and advocated the prohibition of quacks from the society.[2] He mentioned that they were to be treated as outcastes and compared a quack to a treacherous wife who is always dangerous to his life.[3] He made his medical work *sadvaidyajīvana*, an interesting study by composing it as a *kāvya*. It is very interesting to read even by a common reader versed in Sanskrit. The style is simple and sweet and melodious to be heard because of its rhythm. Some verses written in *citrabandha* form exhibit his talent in poetry-writing

KONḌUBHAṬṬU

Konḍubhaṭṭu was a great scholar-physician under the Reddi kings of Konḍavīḍu He was a recipient of great honours by the Reddi kings. His son Rāmacandra also was a great scholar. He wrote a commentary entitled *Padamanjūṣikāvyākhya* to Bhōja's *Campū Rāmāyaṇa*. In his work,Rāmacandra mentioned his father Konḍubhaṭṭu

1 *Sadvaidyajīvana*, p 36.

2 *Ibid.*, pp.30,37.

3 *Ibid.*, p 37.

as the incarnation of Lord Dhanwantary in the world [1] It indicates that Koṇḍubhattu was a profound scholar in Ayurveda Except this source, we do not find any other source mentioning Koṇḍubhaṭṭu as a physician He is wellknown as a scholar both in Sanskrit and Telugu He and his son were mentioned in the Mancāḷḷa grant of Vemareddi, the Reddi king of Kondavidu This epigraph dated S' 1262 (A D 1340) gives a brief genealogical line thus [2]

Callā Oubhaḷabhaṭṭāraka

Vajjhalabhaṭṭāraka

Koṇḍubhaṭṭa

Rāmacandra

Rāmacandra, the donee of this grant was given a house-plot in Mancāḷḷa village This reveals the fact that the great physician Kondubhaṭṭu belonged to the coastal Āndhra region

INDRAKANṬHIVALLABHĀCĀRYA

Vallabhācārya or Vallabhēndra of Indrakanṭhi family of Śrīvasta *gōtra* and āpastambha *sūtra* was one of the prominent medical scientists of medieval Āndhradēśa He introduced himself in the introductory verse and the colophon of his medical work *Vaidyacintāmani* that he was well-versed in all *sastras*, an eminent scholar in the Science of Medicine and versed in all scholarship and knowledge.[3]

We do not find any information regarding his native place or date He was the son of Amarēśwarabhaṭṭāraka. Though he introduced himself as a great poet, we do not find any other literary work on his name. In the triennial Catalogue of Manuscripts in the Government Oriental Manuscripts Library, Madras, there is a palm-leaf manuscript of the book entitled as *Cintāmaṇyupanyāsālu*.[4] The author is mentioned as Yallubhaṭṭa of Kanṭhi family. In some manuscripts of *Vaidyacintāmaṇi* also Vallabhēndra is mentioned as Yallubhaṭṭa [5] Instead of writing

1 M.Suryanarayana Sastri, *History of Sanskrit Literature*, Andhra Saraswata Parishat, Hyderabad, 1961, p. 358.

2 *Reddi Sancika*, Appendix, pp, 3-9

3 *Vaidyacintāmaṇi*, V R Sastrulu & Sons, (Madras, 1925), I-2 & the colophon

4 *A Triennial Catalogue of Mss.*, GOML, (Madras, 1939-40), Vol.X, p 8343

5 TSML: D.765, B. 10771.

Indrakanthi family, the scribe wrote *kanthi* only. *Vaidyacintāmaṇi* was the result of his long-run and zealous research in the field of medicine Vallabhācārya explained many new diseases and prescribed many wonderful treatments In the field of daignosis also, he explained new methods In the daignosis of the venereal diseases, he introduced the method of testing urine by boiling it [1] He found out some *mahājwaras* and classified them under a separate division [2] He observed that there were twenty other *kāsalu* which were not identified previously and proved the existence of *Bangālakāsa*, *Mandārakāsa*, etc with their characteristics He explained some other characteristics of other diseases which were not mentioned in the previous medical works As time passes on, generally some new diseases occur Vallabhācārya keenly observed the characteristics of new diseases and found out the prescriptions against them

Vallabhācārya had a good knowledge of the materia medica also It seems that he maintained a laboratory in his own hospital and continued research on many things relating to medicine He invented many new drug-substances and their effects and characteristics.

Vallabhacarya's work was quoted by many scholars on medicine. Basavaraju, who lived between A.D. 1450-1525 referred *Vaidyacintāmaṇi* [3] Hence it is clear that *Vaidyacintamani* is quite earlier than *Basavarājiyamu*. Vallabhacarya took some verses from *Bāhaṭagrantha*,[4] written by Bahaṭacarya at about A D 1300 or in the early fourteenth century Especially the verses explaining the *aṣṭasthānaparīkṣa* were taken without any change Hence it is probable to think that Vallabhēndra might have lived in fourteenth or fifteenth century The great scholar in Ayurveda, referred in the Brahmana Kraku grant[5] namely Śrīngiri Paṇḍita is mentioned as the son of Vallabha, who belonged to Srivatsa *gotra* Laxmaṇapaṇḍita, the renowned scholar physician in the court of Bukka II also introduced himself as the son of Vallabhēndra of *Śrīvatsa gōtra* and *āpastambha sūtra* The grant o

1 *Vaidyacintāmaṇi*, I, p 772

2 Ibid. pp 36-135

3 *Basavarājīyamu*, I-1

4 *Vaidyacintāmaṇi*, I, p 2

5 *Epigraphia Andhrica*, II, pp 73-87.

Brahmana Kraku is dated in S' 1298 (A.D 1376). Vaidyavallabha is written in the reign of Bukka II, i e , A D 1404-06 The *gōtra* and *sūtra* of the three scholars, Vallabha, Śrīgiri and Laxmaṇa paṇḍita, are one and the same The last two belonged almost to the same period. There is scope to believe that these two Ayurvedic scholars were the brothers and Vallabhēndra might be their father If it is so, Vallabhēndra, the author of *Vaidyacintamaṇi* can be identified as the scholar who lived in the first half of the fourteenth century A D Unfortunately there is no mention of the name of the grand father of either Śrīgiri or Laxmaṇapaṇḍita But one thing can be stated definitely that Laxmaṇa Paṇḍitia must be a son of an Ayurvedic scholar and practitioner, since the kings preferred to appoint a physician as *Prānacarya*, who belonged to a family of physicians

Vaidyacintāmani is translated into Telugu twice,[1] one by Dēvulapalli Vēnkatanarasakavi and the other by Dhēnuvukoṇḍa Kēsavakavi It indicates the popularity of the work in Andhra region The palm-leaf manuscript copies of *Vaidyacintamaṇi* by Vallabhēndra are found available throughout the country It was quoted by many Indian scholars Especially in SouthIndia, it became a source-book for the later works on medicine

SRIGIRIPANDITA

Brahmanakraku, a village in the pākanāṭi *viṣaya* was a centre of learned scholars An epigraph from this village dated S' 1238 (A.D. 1376)[2] registers the grant of the village krāku to the Brahmins by Harihara II for the merit of his father after renaming it as *Bukkarāyapuram* In this grant, we find the name of an Ayurvedic scholar Śrīgiripaṇḍita among the donees He was mentioned as the son of Śrīvallabha of Śrīvatsa *gōtra* and was described as the foremost among the scholars of Ayurveda and Yajurveda It seems that he was the brother of Laxmaṇapaṇḍita, the author of *Vaidyavallabha*, who was also mentioned as the son of Vallabha of *Vatsa gōtra* Śrīgiri was the contemporary of Sāyana who was also mentioned as one among the donees of this grant.

1 *A Des. CAt. Tel. Mss.*, GOML, Vol XI. Nos. D 2406, 2458.

2 *Epigraphia Andhrica*, II, pp 73-87; *Bharati*, III, March, 1926, pp. 89-95.

LAXMAṆAPAṆḌITA

He was the prānācārya or the personal physician of Immadi Bukkaraya who ruled the Vijayanagara Empire during A D 1404-06 N.Venkataramanaiah was the first historian to identify him and his medical work *Vaidyavallabha* Then D V Subbareddi and B Rama Rao studied the manuscripts with medico-historical perspective and gave some more details about the author and his work

"Laxmanacarya accompanied the king during his campaigns against the Bahmani kingdom" [1] In the introductory chapter of his work, the author describes the circumstances in which he had composed the work. The king who, as a Prince, conducted many expeditions and conquered some tracts came to recognise the importance of the body for the performance of virtuous deeds and also the need of up-keeping good health for the preservation of the body Aware of the great learning of his personal physician, he asked him to compose a work "which is beneficial to all and is according to the sciences and which is the key to attain intellect and long life " Laxmaṇapaṇḍita obeyed the request of the king and compiled the work called *Vaidyavallabha*, perhaps after the name of his father (Vallabha)

Laxmaṇācārya states that he belongs to a family of *vatsa* It means that he belongs to *Srivatsa gotra* In the colophons of this work, it is mentioned that the author was the son of Vallabha Sūrin The suffix *Sūrin* to the name of his father indicates that his father too was a great scholar.

Vaidyavallabha deals with the daignosis and treatment of various diseases like other compilations of medieval period Some of the subjects dealt with are fevers with different types, bleeding piles, urinary diseases, tumours, gastric diseases, anemia, jaundice, diarrhoea, abortion, miscarriage, diseases of women, epilepsy, eye-diseases, diseases of teeth and head, fistula in ano Apart from the daignosis and treatment of the diseases, it gives for the cure of diseases, the propitiatory rites which are called by the name *karmavipāka* [2]

As a royal physician, Laxmaṇācārya accompanied the king to the war-camps also It reveals the fact that he was an expert physician. He might have belonged to the family of physicians But we do not find any information about the other family members

1 Further Sources of Vijayanagara History, II

2 D.V.Subba Reddi & B Rama Rao, A Rare Sanskrit Medical Manuscript of Early Vijayanagara Kingdom, *Bulletin, IHM*, II, p 64

NITYANATHASIDDHA

Nityanātha lived in Śrīśailam area at about A.D 1360 [1] He was a rasasiddha, who formulated many rasa drugs In his work *Rasaratnākara*, he introduced himself as the son of Parvati, as a renunciator of the worldly relations His work consists of five khandas i.e , Rasakhanda, Rasēndrakhanda, Rasāyanakhaṇḍa, Vādakhaṇḍa and Mantrakhanda. The last one is not available In his work, Nityanāthasiddha mentioned that he composed it after a thorough study of the previous works such as *Rasārnava*, *Rasamangaḷa* and the works of Nāgārjuna, Susruta and Bāhata in addition to the knowledge he gained at the feet of his preceptor and out of his own practical experiments

In *Rasakhaṇḍa*, Nityanātha described the *rasavaidya* as divine medicine, surgical and *agnikarma* as of *rākṣasas* and siddha medicine as of *mantras* The ultimate aim of all schools of Indian philosophy was the attainment of *mōkṣa* By this, they mean liberation from the cycle of births To achieve this goal, the Indian philosophers prescribed four paths, i e , *bhakti* (devotion), *jnāna* (knowledge), *karma* (action) and *yōga* The last one developed multifaceted during the medieval period. It was propagated as the best method to attain eternal *mōkṣa* The yōgis well-explained the knowledge about the nāḍīśāstra, the science of respiration and perspiration (*swaraśāstra*) and also of *rasaśāstra* It was mostly developed in Tantric and Saivite cults Nityanāthasiddha was a Tantric Saivite.

Nityanātha was a great scientist in Rasasiddha system of medicine and invented many new methods in pharmacology and new remedial treatments to many diseases mentioned in eight divisions of Ayurveda He described the drug substances available in the surroundings of Śrīśailam and their efficacy He described the Bauddharamas, the places where mercury and other mineral substances are available, the educational centres located there, etc in his work He also explained the process of purification of metals, calcination of metals and gems, fixation of mercury, preparation of *kajjali* (sulphide of mercury), etc.

In the history of Rasasiddha system of medicine, Nityanātha siddha occupied an unique place and his work was quoted by almost all the writers in Rasasiddha system. He was referred in the contemporary literary works as a great siddha belonging to nātha cult [2]

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1 M Rama Rao, *Temples of Srisailam*, AP Govt Arch Series, No.23,p 5

2 *Navanātha Caritra*, p.267.

UPĀDHYĀYA MĀDHAVA:

In fourteenth century, we find many persons of the name Mādhave in the Vijayanagara empire The prefix *Upādhyāya* to the name of Madhava indicates the fact that he was a teacher He is the author of *Ayurvedaprakasa* in Sanskrit This work is in the form of practical instruction to the students in *Rasaprakriyas*, while the *gurus* were making preparations, the students were witnessing and learning the minute pharmocological details of the *Rasauṣadhas*.

Mādhava mentioned the word "*Varaka*" as a word of common usage to *Suvarṇa* It is a Telugu word Even now people use the word "*Varakaṭṭuta*" to mean to test gold by rubbing it on a touchstone Except in this work, in no other medical work the word *varakam* is used to mean *Suvarṇa* Perhaps, Upādhyāya Mādhava might be a guru in Śrīśailam teaching the students the preparation of rasausadhas The description of *Rasa* drugs in his work reminds us of a description in *Navanātha Caritra*, a Telugu work about the preparation of *rasasiddha* drugs by the *gurus* while the students were helping them [1]

The palm-leaf manuscript copies of this work are available in Bhandarkar Oriental Research Institute,[2] oriental institute, Baroda[3] and in the library of Asiatic Society, Calcutta.[4]

BASAVARĀJU

Nīlakanṭha Koṭṭūru Basavarāju was one of the most eminent medical scientists of medieval Āndhradēśa. He was famous not only in this region, but also in all parts of India He was the son of Namassivaya and a desciple of Ārādhya Rāmadēśika He was a Saivite. He introduced himself in a colophon of his work *Basavarājīyamu* that he was proficient in writing poetry and a crest-jewel among the physicians.[5] If we go through his work, we find out that he did not boast himself but proved himself an eminent scholar-physician.

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1 *Navanatha Caritra*, p 296

2 BOR 19,20

3 OIB . 572

4 ASC, III, B 10, III-B, 9, G 11221

5 *Basavarajiyam*, Vavilla Ramaswamy Satrulu & Sons, (Madras, 1948), p.1106

We do not know exactly about the other writings of Basavarāju except his famous work *Basavarājīyamu*. It was written in both Sanskrit and Telugu verses according to the needs and conditions of the country. To the physicians of this region, it is an important hand-book. The author had studied many medical works of high standard and gained a good knowledge of the science of medicine In the beginning of his work, Basavarāju stated that he had started writing this work after a thorough study of many works such as "*Carakam, Mādhava-kalpam, Bhairavakalpam, Vāgbhaṭam, Siddhavidyābhūḥ, Sidhdarasārṇavam, Bhēṣajakalpam, Jatukakarṇam, Mādhavīyam, Aśvanīyam, Āyurvēdam, Sindhūradarpaṇam, Pūjyapādīyam, Dēvīśāstram, Candrakalpam, Brahmagāruḍam, Cintāmaṇi, Jyōtiṣam, Kāśīkhanḍa, Śarīram, Sūtram, Nityanāthīyam, Nandināthīyam, Agnimatāntaram, Matāntaram, Anyaśāstram, Cikitsāsāra, Siddhasangraham, Karmavipākam* and *Rēvaṇasiddhakalpam*". He mentioned that he was going to write this medical work so as that it would be in complete form, with the description of all diseases with their characteristics, etc in a simple style and along with Telugu verses.[1]

In the starting verse of his work, Basavaraju pays obeisance to Gods Viṣṇu, Śiva, Brahma, Saraswati, Vighnēśa and Vaṭuka Bhairava [2] In the second and thirteenth verses, he made separate prayers to Lord Śiva and Lord Basava respectively He mentions that he is a Moon in the ocean-like *'Nīlakantha Vamśa'* [3]

With regard to the place and date of Basavarāju, there is no agreed opinion among the scholars Some scholars opine that he is a *Kannadika*, and some others believe that Basavarāju, the hero of *Basavapurāṇamu* is the author of *Basavarājīyamu*.[4] But this opinion cannot be accepted since *Basavarājīyamu* is much later than *Basavapurāṇamu* Here and there he composed some verses in Telugu metrical form especially while explaining the treatment for certain diseases. These verses reveal the fact that he was a scholar in Telugu language and belonged to the Telugu region There are some places

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1 *Basavarājīyam*, I- 5to12.

2 *Ibid*, I-1.

3 *Ibid*, verses, 2,3 & 13.

4 Sri Govardhana Sarma(ed), *Basavarājīyamu*, Goraksanayantralay, (Nagapur, 1930), pp. iv-vi.

having *māmiḍi* as prefix and suffix to their names such as 'Cirumāmiḍi, Pōrumāmiḷḷa' Māmiḍipūḍi', etc [1] Though his place of residence Niḍimāmiḍi cannot be traced in modern days, it might have been once located in the Andhra region.

In Āndhradēśa there is a popular verse among the scholars which runs thus "*Kṛtētu Carakaḥprōktaḥ—Kalau Basavakaḥ smṛtaḥ*" [2] Though it is not probable to think that it is written in the beginning of *kaliyuga* on the basis of the above verse, it must have been written somewhat earlier than the popular works written in Āndhradēśa. Basavarāju referred to *Kāśikhanḍamu* of Śrīnātha[3] which is believed to have been written in A.D.1435.[4] The author also gave references to *Vaidyacintāmaṇi* which is considered to be a work of 15th century If we observe the materia medica mentioned by Basavarāju, we find that he prescribed *phirangicekka* or China-root in his work.[5] This herb is introduced only after the arrival of Protuguese Though he did not explain the disease by name, its diagnosis, treatment in particular, he prescribed the herb *Phirangicekka* (China-root) in venereal diseases Hence it is clear that he wrote his work at the time when the herb was newly introduced, but the disease syphilis had not yet spread widely. That's why Basavarāju prescribed it in general against the venereal diseases Thus we can get the probable date of this scholar as the first quarter of 16th century

In this work, altogether there are 25 chapters Each chapter deals with each category of diseases, their causes, diagnosis, treatment and regimen to be followed by such patients, etc. On the whole it is an exaustive work on many kinds of diseases and thier treatment Basavarāju followed the traditional systems in many places and when ever necessary he added new things He mentioned the *Catusthāna Parīkṣa* [6] He very well explained the *agnikarma*[7] in the light of his own

1 *Sii*, Vol,X,No.504, *Telangana Inscriptions*, II, Inscriptions of Kakatiyas, Nos 8,9,10, & 22

2 *Basavarajiyamu*, p. vi.

3 *Ibid*, pp. 817-18.

4 *Reddi Sancika*, p 300.

5 *Basavarajiyamu*, p.433.

6 *Basavarajiyam*, I-33 to 36

7 *Ibid*, XXII - 55, p.940

experience Basavarāju explained surgery also in detail.[1] He mentioned many new prescriptions to certain diseases[2]

The life-saving medicines, he introduced in the treatment, were *Brahmāstrarasamu*, *Sūcikāmukharasamu* and *Sūcikābharaṇarasamu*. The credit of introducing the usage of mercury in powdered form and the venom of serpants in the treatment of various diseases goes to Basavaraju The most famous *Vājīkaraṇa* medicine *Pūrṇacandrōdayamu* was first explained by this great medical scientist

BHĀVAMIŚRA

Bhāvamiśra was the famous scholar-physician of Medieval Āndhradēśa He gained an outstanding reputation all over the country The manuscript copies of his work *Bhāvaprakāśa* are available extensively in almost all parts of the country[3] His work hints the fact that he might have toured not only throughout our country but also in the foreign lands, observing various systems of medicine. The colophon in *Bhāvaprakāśa* informs us that he was the son of Laṭakamiśra or Laṭakana Now-a days, the dictionaries give the meaning of the word '*misra*' as 'a scholar' In the medieval period, the saiva scholars who followed the 'miśra school of philosophy' in Saivism were called as '*miśras*' or '*miśraśaivas*' Śaivism consisted of five schools i e, 1 *Suddha Saivism* or *Kashmira Śaivism*, 2 *Drāviḍa Saivism*, 3 *Miśra Saivism*, 4 *Sāmānya Saivism* and 5 *Vīra Saivism*[4] The Miśra saivas worship all the deities, but had special regard for Siva

They follow the policy of toleration towards other faiths. They perform the worship of *Pancāyatana*. Their plan of worship is as follows·[5]

Nā		Ra
	Śan	
Dē		Ga

1 *Ibid*, p 908 - 937

2 *Basavarājīyamu*,, VI, VII & VIII.

3 A checklist of Sanskrit Medical Manuscripts in India, Department of History of Medicine, Hyderabad, 1972, p 12.

4 SRi Kuruganti Sitaramaiah, *Kuruganti Vyasalahari*, Sri Kurugantirachanala Prachurana Sanghamu, Gadwal (A P), 1961, p.48

5 *Ibid*

San· Sankara

Nā . Nārāyana

Ra : Ravi

Ga : Ganapati

Dē . Dēvi

In Bhāvamiśra's work *Bhāvaprakāśa*, we can find his liberal religious views. He paid his regards to Sankara (Sōmēśa), his consort (Dēvi), Ravi (Āditya), Gaṇapati, Viṣṇu(Nārāyaṇa) and the Brahmins [1]

Laṭaka or Laṭakana, is a peculiar name The word '*laṭaka*' means ' a lewd-fellow' The suffix *miśra* indicates that he is a Saiva scholar The two words appear quite contrary It seems that it is not his original name The literary sources inform us that the rich people in those days gave importance to sensual pleasures and luxuries There was no restriction from any side against prostitution The state also recognised the profession and collected tax from them The prostitutes employed the physicians who knew the *Rasa* medicine at their homes [2] Laṭakana might have worked as a physician in such places treating mostly the diseases that occured on the genetic organs Hence he might have been called as Lataka Misra (a scholar of lewd people or a *pandit* treationg the lewd-fellows), or he must be an independent physician who might be an expert in treating the lewd-fellows, who became victims to venereal diseases

With regard to the place of Bhāvamiśra, scholars expressed different opinions. While writing about the *ṛtucarya*, the division of seasons in his work is according to the climatic conditions and changes of South India. It is because of the rotation of the Earth round the Sun, the seasonal changes, and the *āyanas* occur Due to these seasonal changes, the changes in the equilibrium of the *dhātus* take place which effect the health of the living creatures. That's why the Ayurvedic scholars dealt with *ṛtucarya* in their works. They prescribed the dietetic habits in accordance with the seasonal changes In the South, due to the geographical conditions prevailed, there remains a lengthy rainy season That's why there is observed the season '*prāvṛt*' in addition to the rainy season. In the north due to the lengthy winter season, there are observed two *ṛtus* during this period i e., Hemanta and Śiśira There

1 *Bhavaprakasa*, Purvakhanda, vv. 1-3.

2 *Bahulasva Caritra*, Srikrsnarayandhra Vijnana Sarwaswamu, p 386.

are observed altogether six *ṛtus* including *Prāvṛt* in the South and including *Śiśira* in the North [1] According to Indian Astronomy, there are two *ayanās* in a year. According to Caraka, the *Varṣa*, *Śarat*, and *Hēmanta ṛtus* come under the Uttarāyana [2] Susruta mentions six seasons including *Prāvṛt* and starts the counting of the year from the starting of '*mina*' till the closing of '*kumbha*', each season having two months According to this division, *Karkāṭaka* and *Simha* come under *prāvṛt*. The *Dakṣināyana* starts with *Prāvṛt* and not with *grīṣma* as mentioned in *Caraka Samhita* Hence *Varsa*, *Śarat* and *Hēmanta* come under *Dakṣināyana* and the period consisting of *Vasanta*, *Grīṣma* and *Prāvṛt* is considered as *Uttarāyana*. Just as the seasonal division deviates, so as the starting of the *āyanas* also will be effected. The starting of the passage of *Kanya* which marks the starting of *Varṣaṛtu* becomes the starting of *Dakṣināyana* The starting of *mīnasankramaṇa*, which marks the starting of *Vasanta ṛtu* is noted as the entry of *Uttarāyana* This description of the seasonal changes is relevant to Madhyadesa. Hence Susruta is identified as the scholar hailing from Madhyadesa

Bhāvamiśra explained six seasons including *Prāvṛt* According to him *Vasanta ṛtu* includes *Kumbha* and *Mīna* and *Hēmanta* season consists of *Dhanur* and *Makara Sankramaṇās*

Varṣa ṛtu consists of Simha and Kanya Sankramaṇas. The starting of *Varsa ṛtu* with *Simha-sankramana* marks the starting of *Dakṣināyana* and the starting of *Vasanta ṛtu* with *Kumbha-sankramana* marks the entry of *Uttarāyana* This description of seasonal changes can be identified as relevant to South India. According to Bhāvamiśra's description of the changes of seasons, the months *Māgha* and *Phālguna* form *Vasanta ṛtu*. The trees blossom in this season. In the South, generally, the trees like mango, neem, etc. blossom in *Māgha* and *Phālguṇa*. The seasons of the year have an effect on the *dosās*. Among the causes of the diseases, the climatic characteristics of heat and cold of the various seasons is the most important one. That's why, the physicians of ancient and medieval India, suggested the modifications in the dietetic regulations to be undertaken according to the change of the season. Bhāvamiśra explained it keeping in mind the climatic conditions prevailed in South India Hence he can be considered as a South Indian

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1 *Venkatadriyamu*, Introduction, p. 19.

2 *CS*, 1 6

The following table is useful to observe the differences in the description of seasons explained by the three scholars hailing from three different geographical areas in India.

Caraka & Vāgbhaṭa				Susruta				Bhāvamiśra			
Caitra	Mēṣa	Vasantha	Uttarāyana	Phalguna	Mina sankramana		Uttarāyana	Māgha	Kumbha sankramana		Uttrayana
Vaiśākha	Vṛṣabha			Caitra	Mesa	Vasantha		Phālguṇa	Mīna	Vasantha	
Jyēṣṭa	Midhuna	Grīṣma		Vaiśākha	Vṛṣabha	Grīṣma		Caitra	Mēṣa	Grīṣma	
Āṣāḍha	Karkāṭaka sankramana		Dakṣināyana	Jyesta	Midhuna			Vaiśākha	Vṛṣabha		
Śrāvaṇa	Simha	Varṣa		Asadha	Karkataka	Pravrt		Jyēṣṭa	Midhuna	Prāvṛt	
Bhādrapada	Kanya			Sravana	Simha			Āṣāḍha	Karkāṭaka		
Āśwayuja	Tula	Śarat		Bhadrapada	Kanya sankramana		Dakṣināyana	Śrāvaṇa	Simha sankramana		Dakṣināyana
Kārtika	Vṛścika			Āśwayuja	Tula	Varṣa		Bhādrapada	Kanya	Varsa	
Mārgaśira	Dhanus	Hemanta		Kārtika	Vrscika	Śarat		Āśwayuja	Tula	Śarat	
Puṣya	Makara sankramana		Uttarāyana	Mārgasira	Dhanus			Kārtika	Vṛścika		
Māgha	Kumbha	Śiśira		Puṣya	Makara	Hēmantha		Mārgaśira	Dhanus	Hēmantha	
Phālguṇa	Mīna			Māgha	Kumbha			Puṣya	Makara		
Uttarāyana starts with the commencement of Makara. Dakṣināyana starts with Karkāṭaka sankramaṇa.				Uttarāyana starts with the commencement of Mina and Dakṣināyana starts with the commencement of Kanya.				Here Uttarāyana from Kumbha sankramana to Karkataka. Dakṣināyana from Simha sankramaṇa to Makara.			

Some scholars wrote that he belonged to Madrapuri [1] P.C.Ray wrote in his work *Antiquity of Hindu Medicine* that Bhāvamiśra worked as an *ācārya* in Kasi University and taught Ayurveda to 400 students at about A D.1550 [2] Jolly also observes[3] that Bhāvamiśra is said to have been a famous physician in Benaras. He also mentions that a manuscript of his work *Bhāvaprakāśa* is kept in Tubingen and dated A D. 1558-1559. He expresses his opinion that the copy cannot be much older than the original,* because syphilis and the drug which were imported to India by the Portuguese at about A.D. 1535 are found explained in this work. P V.Sarma informs us that Bhāvamiśra used the word 'Mudgal' for Mughal [4] He opined that he lived in the Moghal empire under the rule of Akbar. But it cannot be acceptable, since Mudgal cannot become Moghal. There is a place on the name 'Mudgal' in Deccan. It is situated in the Kṛṣṇa-Tungabhadra doab. This area became a bone of contention between the Rayas of Vijayanagar and the Sultans of Bahmani Kingdom. Raicur and Mudgal were the two formidable forts in this region. When Devaraya I was ruling the Vijayanagara empire, Mudgal was under the rule of Bahmani King. It is a wellknown fact that Ferishta narrated that Devaraya I led an expedition to Mudgal to bring Mudgal beauty, a gold-smith's daughter to his harem.[5] After his accession to the throne, Saluva Nṛsimha (A.D. 1486-91) captured Mudgal and Raicur and added them to the Vijayanagara empire. After his death, again the Raicur doab was re-occupied by the Bijapur Sultan. Kṛṣṇadēvarāya again captured these forts but after his death, they slipped away from the Vijayanagara authority. After some time, these forts were captured by Ramaraya and remained under the Rayas until the battle of Rakṣasi-Tangaḍi.

Bhāvamiśra wrote his work *Bhāvaprakāśa* in the middle of the sixteenth century. It can be proved by the fact that he explained the disease syphilis which spread first in South India by the Portuguese. It was during the reign of Kṛṣṇadēvarāya that they developed their trade relations with the kingdom of Vijayanagar. Many merchants from Portugal settled in the kingdom. Bhāvamiśra explained that this disease

1 T.Venkatadri, *Venkatadriyamu*, Introduction, p.7.

2 *Bhāvaprakāśa*, Introduction, pp.iv-v.

3 Jolly, Julius, *Indian Medicine*, pp. 2-3.

4 Dr. P.V.Sarma, *Ayurved Ka Vaijnanic Itihas*, p. 140.

5 Ferishta, Briggs, *The Rise of Mohammadans*, II, p. 380.

spread in India because of the Portuguese and hence named it as *phirangiroga*[1] He prescribed the 'China-root' which was also introduced by the Portuguese in India. Thus it is accepted by all the scholars of History of Medicine that Bhāvamiśra belonged to the mid sixteenth century It is probable to think that Bhāvamiśra was the resident of South India since he prescribed the '*Rasakarpūra*' medicines in the treatment of venereal diseases besides the China-root He took this *rasa* prescription from *Rasapradīpika*, which for the first time prescribed it in *Phiranġirōga*[2] He might have lived in Madrapuri (Madras)[3] as Sri Krishnalal Saligramji mentioned and he might have referred to Mudgal, an important place in South India He might have lived in Vijayanagara empire, when Ramaraya was the de facto ruler of the empire It is a wellknown fact that Ramaraya received and patronised many scholars from various parts of the country Bhāvamiśra suggested the visit of the holy places Śrīśailam and Puruṣōttamaksētram in case of Viṣajwaras[4] It hints the fact that he might have visited and was in touch with those places. He fully made use of *Madanapālanighantu*,[5] a work written in Āndhradēśa He gave references extensively from Lōlambarājīyam also These facts also support the above view that he lived in Āndhradēśa.

Bhāvaprakāśa is written in three khandas i e , *Pūrva*, *Madhyama* and *Uttara* like in *Śārṅnadharasamhita* He followed the works of ancient writers like Caraka, Susruta, Vagbhata, Harita, Vṛnda, Cakrapani, etc and the works of medieval writers on *rasa* medicine such as *Rasapradīpa*, *Rasēndracintāmaṇi*, *Rasaratnapradīpa*, etc Though he took many things from ancient works, he followed an independent method in dealing with the things and expained many new things he observed in his time He gave importance to Vedic as well as Tantric systems of Indian medicine It is observed that there is an impact of Unani system of medicine in many places in this work[6] He explained

1 *Bhavaprakasa*, Madhyamakhanda, p 806

2 V Sankara Sastri, *Bhavaprakasa*, Introduction, pp ii-iii.

3 The former name of Madras was Madurapuri Later it was known as Chennapuri or Chennapattanamu after the name of Chennappanayaka. But it seems that the former name was not Completely forgotten. It was later called by the Europeans as Madras.

4 *Bhavaprakasa*, Madhyamakhanda, p. 878

5 P V.Sarma, *Ayurved Ka Vaijnanic Itihas*, p 141

6 *Bhavprakasa*, Introduction, pp i-ii

many new drug substances which were not mentioned in the previous medical works. Some of them are . *Khurasani vamu* (black henbane),[1] *vasa*(Acorus Calamus),[2] *phirangi-cekka* (China-root),[3] opium,[4] China-camphor,[5] palm-date,[6] *simaregu, macikaya, revalacinni, kusumba, berikaya*, acrute, rose flowers, etc Thus he stood as an example to the other physicians as an ideal scholar who put into practice the principle of receiving any thing good, after careful observation and experiment, from the other systems also He mentions in one of his verses thus "A physician who is a scholar in the science does not stick up to the traditional science. He should observe and perceive the subject thoroughly with his own common sense."[7] Bhavamisra's ideas with regard to the ideals of the profession can be appreciated Many verses in his work hint the fact that he was an ideal physician who followed good principles in his profession[8] He was a broad-minded medical scientist who advised the other physicians not to be rigid in their views.[9]

RĀVAṆA PAṆḌITA

Rāvaṇa Paṇḍita is the author of *Arkaprakāśa*, *Bālagrahacikitsa*, *Bālatantra* and *Nāḍī parīkṣa* in Sanskrit He also wrote philosophical commentaries to Ṛgveda and Yajurveda. Some people identified him with Rāvaṇa, the king of Lanka[10] But it is totally wrong. The author of *Arkaprakāśa* belonged to the later half of the sixteenth century It was written in imitation of *Bhāvaprakāśa* Some of the verses are taken with minor changes from *Bhāvaprakāśa* Only the method of making the medicine was changed and the drug substances in many prescriptions

1 *Bhāvaprakāśa*, Pūrvakhaṇḍa, p 343.

2 *Ibid* p 322

3 *Ibid*. p. 324

4 *Ibid*. p. 363

5 *Ibid* p. 373.

6 *Ibid* p. 599.

7 *Ibid*. V-34.

8 *Ibid*. V-38,39,56 & 101.

9 *Ibid*. V-11.

10 Bhudev Mukharji, *Rasajalanidhi*, Introduction, p xx.

were taken without any change

In *Arkaprakāśa*, the Unani system of making medicines (Araq) is explained This system gained popularity in the later medieval period Before that, there were no *arkas* in Indian medicine The word '*arka*' means 'jillēdu' (calitrapis gigantea) or the Sun In the works of Bhavamisra, scholars in Ayurveda observed the impact of Unani medicine But he did not explain the arkas (tinctures) Hence we may believe that *Arkaprakāśa* is a later work which was written on the line of *Bhāvaprakāśa* The author of *Arkaprakasa* explained also the disease *phirangiroga* and its treatment which were imported to India by the portuguese in the first quarter of sixteenth century

Rāvaṇa is said to have written commentaries to Rig and Yajur-vedas He wrote these commentaries on the lines of Sayanacarya giving importance to philosophical interpretation The Sanskrit scholars opined that the commentaries written by Sāyana guided him in his writings on Vedas This fact indicates that he lived after Sāyanācārya '*Pudīna*' is mentioned as a medicinal substance first in *Nighantu Ratnakara* of sixteenth century Rāvaṇa also prescribed *Pudīnārka* Hence Rāvaṇa Paṇḍita might have written *Arkaprakāśa* at the end of sixteenth century or after that. As we have already noticed, Rāvaṇa composed his work closely on the lines of *Bhāvaprakāśa* The drug-substances used are almost the same, but the method of preparing the medicine is different All the preparations in *Arkaprakasa* are tinctures. One cannot imitate the verses so closely and boldly, if he is not related to the author of the original It is probable to think that Rāvaṇa Paṇḍita might be related to Bhāvamiśra He might be either his son or his desciple. That's why, Rāvaṇa made use of most of the verses of Bhavamisra with slight changes Bhāvamiśra also was influenced by the Unani system of medicine In *Bhāvaprakāśa*, he expressed his opinion that a physician should not be rigid in his views and should think himself about the new developments He might have advised Rāvaṇa who was his son or desciple to take instruction in that system also in addition to the knowledge in Āyurvēda Then his period can be considered as the latter half or the last quarter of the sixteenth century

Rāvaṇa Paṇḍita's *Arkaprakāśa* is considered as "an excellent booklet containing a comprehensive treatment of all sorts of diseases by means of tinctures only" It was he who first introduced this new system into Ayurveda He Sanskritised the work '*araq*' as '*arkam*'.

PANAKALARAYA

He was an-eye-specialist and wrote "*Nētradarpaṇamu*", a teatise on eye-disease He composed his work in Telugu prose-form In the introductory chapter, the author gave some details about his birth place and family members He was the native of Tadepalli, a village situated in the Kondaviti Sima He was the son of Venkānna and Mahālaxmamma, grandson of Subbārāyuḍu and great grandson of Rangāmātya His family name was Tadepalli and he belonged to Srivatsa *gotra*. Perhaps the village Tadepalli was the ancestral agrahara, therefore their family name might have been called after the name of the place which is located in the present Guntur district. Pānakālarāya had two elder brothers known as Venkatapatirāya and Sītāpatirāya [1]

A colophon in one of his works mentions that he was a devotee of Venugopalaswami and the son of Rangayamatya But it seems to be incorrect or may be a mistake committed by the scribe Pānakālarāya introduced himself as the great grand son of Rangamatya Late Sri Nidadavalu Venkatarao opined that Venkanna, the father of Pānakālarāya and grandson of Rangāmātya might have had another name as Rangamma [2] It may be correct if we keep in mind our custom of giving grandfather's name to grand son Even today we see some people in villages called by two names-one given according to his horoscope and the other name called after the name of his grand father

The genealogical table that can be drawn from the information given in the introductory verses of *Netradarpanamu* is as follows

Rangāmātya

Subbārāyuḍu

Venkanna w. Mahālaxmāmba

Venkaṭapatirāya | Sītāpatirāya | Pānakālarāya

About the date of Pānakālarāya, we donot find any direct evidence in the text. In addition to this medical work, he composed many literary works, particularly the '*Śataka*' works

1 Sri V.Subbarao (ed), *Satakakavulacaritra*, pp.459-60

2 V Subbarao (ed), *Satakakavulacaritra*, p.460-61

The *Satakams* he wrote are[1] 1 *Mānasabōdha Śatakamu*, 2. *Cittabōdhaśatakamu*, 3 *Pārthasārathi Śatakamu*, 4 *Rāmasatakamu*, 5. *Laxmīdēvi Śatakamu*, 6 *Nṛsimhaśatakamu*, and 7. *Rukmiṇīpati Śatakamu* But no where did he give any information about his date Though he stated that he won the admiration of the kings and was honoured by them,[2] he did not give their names But this statement suggests that he might have flourished when there were many local rulers in Āndhradēśa

Pānakālarāya was a great patriot A verse[3] in *sisa* metre describing his motherland i e , Kondavītisīma closely ressembles a verse written by Srinatha Pānakālarāya placed his native land and his native country in high esteem He described his native place i e , Tadepalli as being situated in the northern part of Kondavidu region and bestowed with twelve hills, two rivers, a port and also with the temple of Lord Nṛsimha His description of Kondavidu in a full big verse reveals his affection towards his native region He mentioned that Kondavitisima could be placed in high rank among the fifty six countries (dēśas) It seems that Kondavitisima was glorious at the time he composed this verse. Under the Reddi kings, the Kondavidu region was at its zeneath in its glory After the fall of the kingdom, it came into the hands of the Rayas of Vijayanagara Taking advantage of the unrest in the Vijayanagara empire after the battle of Rākṣasa-Tangaḍi and the civil war in the kingdom of Gajapatis, Ibrahim Qutub Shah concentrated his attention on the capture of the rich Kondavidu region. He made use of this opportunity by capturing it in A D 1580 and the region came permanently under the sway of Qutub Shahis It seems that at the time of writing *Nētradarpaṇam*, it was under the Rayas of Vijayanagara But when he wrote *Cittabōdhaśatakamu*, it seems, it was occupied by the Muslims. In this work, Pānakālarāya expressed his grief over these political developments and also his hope that Lord Narasimha riding on the horseback would definitely punish the cruel and barbarious aggressors He himself advised his soul to leave the wretched lords and worship Śrīhari[4] It must have happened in the later part of his life He might have written *Nētradarpaṇamu* before A D.1580. Hence his date can be traced approximately as A.D.1530-1590.

1 Sri V Subba Rao (ed), *Śatakakavulacaritra*, p 458

2 *Ibid*. p.459

3 *Ibid*. p.460

4 *Śatakakavulacanthra*, p 465; *Cittabōdha Śatakamu*, v.58

From the genealogical information given in *Netradarpanamu*, we came to know that the author was the great grandson of Rangamatya Rangamatya was said to be a foremost person among the Aruvelaniyogi Brahimins The suffix *'amatya'* to his name also denotes that he might be an officer or minister in the government His son Subbārāyuḍu is also mentioned as honoured by the kings It seems that both Rangāmātya and his son were officers in the government of the time In *Rukmiṇīpati Śatakamu*,[1] Pānakālarāya mentioned that his father Venkataraya was honoured by the kings Probably, they were the medical officers or physicians appointed as *niyogadhipatis* by the government of the time

There is a false propagation or rumour that Pānakālarāya was honoured in the court of Vasireddi Venkatadri But it is not correct because by that time, there took place many changes in the geographical divisions of the country Vasireddi Venkatadri was not a ruler of Kondavidu He was the zamindar of Cintapalli

At the outset of his work, Pānakālarāya paid his obeisance to Lord Krishna then praised the *Trinity* (Viṣṇu, Śiva and Brahma) and their spouses, Anjaneya, Asvins and other Gods Then he paid homage to the sages like Valmiki, Suka, Vyasa and the poets like Bāṇa, Māgha, Mayūra, Bhavabhūti, Tikkana and Kalidasa and to all the poets of all times and finally praises all the physicians Dr Rama Rao hesitated to recognise Pānakālarāya as a physician[2] He expressed the objections for this thus "It may be pointed out that in the verse describing his family, he mentions his grandfather as well as himself as scholars in all sastras, but does not claim credit for them as physicians or surgeons Though he mentioned Asvins among Gods, he had not named Dhanwantari He was satisfied by paying his respects to all physicians as a group without naming any particular famous sages like Bharadwaja, etc , or physicians or surgeons like Caraka, Susruta, etc " But we observe the conditions prevailed in the then society, these objections to consider him as a physician seem to be inappropriate It was a common trend in those days among the scholars to identify themselves as poets more than any thing Almost all the scholars from every field tried to write *Kavyas* or *Satakas* and were anxious to introduce themselves as poets Many scholars in Ayurveda like Indrakanti Vallabhācarya, Tulluru Śarabharāju, Lōlambarāju, etc , composed poetical works and introduced themselves proudly as great poets. Another point is that the ancestores of

1 *Ibid*. p 467, *Rukmiṇīpati Śatakamu*, V.25

2 *Bulletin, IIHM*, Vol.IV (1), 1974, pp10-11

Panakalaraya too were mentioned as whowere honoured by the kings In Andhradesa, many scholar-physicians were born in *Arvela niyogi* families Though their main profession was to take up some job in the revenue department, especially as village *karanams*, many of them like Rāyasam Pērana, Indrakanti Vallabhācārya, Rāmakrishnabhaṭṭa, etc took up medical profession. Pānakālarāya was an eye-specialist It is an usual practice in Āndhradēśa to practise any one of the branches of medicine by certain families either as a main or as a sub-profession Like that the family of Pānakālarāya also might have practised opthalmology In his prayers, the author pays his respects to Asvins, the heavenly doctors and also the physicians of the world as a whole, though he did not mention their names there Above all, we should keep in mind that a lay man or a common poet could not write such a great medical treatise that too a work having concentrated only on eye-diseases This specialised study must have been written by the great Ayurvedic scholar Panakalaraya who took up the specialised study and training in the treatment of eye-diseases

According to Pānakāla Rāya, among all branches of learning, medicine is the best and no other science is equal to that as it is intended for *paropakara* (service to others) He states that after looking over different treatises on Ayurveda, he decided to compose a work in Telugu on eye-diseases, in a very clear style like a mirror for eyes with the following details *Katlu, paṭlu, anjanas, medicines, nasyas* (nasal insufflations), dietetics, medicated oils and lastly surgical treatments

Susruta gives a count of 76 eye diseases, of which ten are due to *vata-dosa*, ten to *pitta-dosa*, thirteen to *kapha-dosa*, sixteen to vitiated blood (rakta), twenty five are caused by the united action of the three *dosas* (*sannipāta*) and two are due to external causes (visible or invisible) But later he added *kukunaka* as the seventy seventh.[1] Later Bhāvamiśra gave the number of eye-diseases as 78[2] Pānakālarāya of medieval Āndhradēśa gives a list of 96 eye-diseases In the beginning of the description of eye-diseases, Pānakālarāya gives a verse on *Karmavipaka* of the eye-diseases Then after describing the 96 diseases, the author gives the causative factors

The diseases, mentioned in his work are[3]

1 *S S*, VI, 1

2 *Bhāvaprajasa* Madhyamakhanḍa

3 Dr B Rama Rao, *Nētradarpaṇam*, *Bulletin*, IIHM,IV(1), Hyderabad, 1974, pp 9-13

Kāca (red)	Kāca (white)	Kāca (black)
Kāca (yellow)	Swētapatala	Raktapatala
Pītapatala	Divāndha	Krsnapatala
Timira	Nētrapuṣpa	Niśāndha
Jalāśraya	Atisrāva	Durmāmsa
Nētraśōdha	Nētraśūla	Nētradāha
Kṛṣṇapilla	Suklapilla	Raktapilla
Nētrakāya	Raktagranthi	Nētrabudbuda
Nētrasūkṣmacalana	Nētracalana	Catvāri
Nētrabandha	Nētrabhagna	Nētrajara
Nētramālinya	Netrarsa	Nētrabhramaṇa
Nētraniścita	Netrakhanda	Dwinētra
Ūrdhwārśi	Netragni	Adhōdṛṣti
Nētrapūya	Nētrakuṣṭa	Nētrapāta
Nētrōnmīlana	Nētranimīlana	Netrardhadrsti
Nētramala	Nētragurtana	Mandadṛṣṭi
Śuklapuṣpa	Raktapuṣpa	Kṛṣṇamaṇḍala
Agnigrandhi	Nētratimala	Pītapuṣpa
Pakṣaghāta	Pakṣaśūla	Nētravalmīka
Pakṣadāha	Pakṣapakṣma	Pakṣaśōbha
Pakṣacalana	Pakṣāticalana	Pakṣajāta
Padmakāya	Padmakhaṇḍa	Padmārbuda
Jalāśrava	Nētrapārśvaśūla	Nētrapārvśva
Nētrapārśvakhaṇḍūti	Nētrapārśvacalana	Nētrapārsvaśōdha
Nētrasarana	Nētrarodha	Nētrapārśvarakta
Nētravilōkana	Nētraphalla	Nētrasphōṭaka
Nētragandhāgni	Duhkhanētra	Nētraspuṣpa
Paksadurmāmsa	Nētrapipīlika	Durmadāndha

Nētradurmāmsa	*Vāta Abhiśyandha*	*Netratıroma*
Kapha Abhiśyanda	*Rakta Abhiśyanda*	*Pitta Abhisyanda*

Pānakālarāya mentioned in the beginning that he would deal with nine methods of treatment, i e , emplasters, medicines for application to be retained by bandages and also dietetics and eye ointments, surgical practices, medicines and glasses But the first four only are found available now Among them, the description of prescriptions of the ointments is very detailed. He gives the following 35 ointments against different diseases

Lakṣāñjana	*Vidruma*	*Akṣa*
Garuḍa	*Sudarśana*	*Mahāgaruḍa*
Śastravallabha	*Nētra*	*Āmalaka*
Saindhava	*Śankha*	*Tāra*
Abhaya	*Bhujanga*	*Sasiprabha*
Tutha	*Candraprabhāvaṭi*	*Lōha*
Vrōdhacandrōdaya	*Laghunārikēḷa*	*Nayanāmṛta*
Mahānārikēḷa	*Marīca*	*Niśa*
Tilaka	*Laghumarīca*	*Sphaṭika*
Trikaṭuka	*Kaṭaka*	*Sukumāra*
Haridra	*Tāmra*	*Garuḍa*
Rajata	*Vyōṣa*	

These ointments might have been in use in the treatment of different eye-diseases in those days The fact that wearing glasses also was in use, by sixteenth century itself in Andhradesa can be known from this work But unfortunately the particular part which explains the surgical practices and glasses is not available now Two prescriptions for *katlu* and *patlu* are well explained [1]

Before starting the subject on eye-diseases and their treatment, he first explained the *Karmavipaka*. Next he gave the causative factors to the eye-diseases. He stated that he would explain the nine means of curing eye-diseases But we find only the first four procedures Till now, we do not find any evidences to know whether the author omitted the

1 B Rama Rao, *Nētradarpaṇamu*, *Bulletin of IIHM*, IV(1), Hyd, 1974, p.13.

remaining five procedures or whether these were lost in course of time. Probably it may not be the omission of the author who started describing the nine procedures one by one and who clearly stated at the end of the work that all the sections in the book were completed and nothing was left out. If for any reason he failed to complete the work, he would not have written that it was completed, without finishing more than half of the work Most probably the second half of the work might have been hidden since it dealt with the new developments Only the first half of the book and the closing verse might have been given to the copyists. The source-manuscript for the published work might be one such copy of the original or a copy of the copied work

SRINATHA PANDITA

He is known to be the author of a great medical treatise "*Parahita Samhita*" There are no other sources found available which give information about Srinatha Pandita, except this work The colophons at the end of some *kandas* of this work run thus: "*Iti Śrīnātha Paṇḍitasyakrtau Parahitasamhitāyam. ..*" There is no mention of the *gotra* or the names of his ancestors or preceptor or his place or patron. The title *Paṇḍita* means a scholar in modern days. But during the medieval days, it was extensively used as a suffix to the names of the physicians Sri Veturi Prabhakara Sastry, V. Sankara Sastri, Mallampalli Somasekhara Sarma and N Venkataramanaiah all were of the opinion that the eminent physicians and Saivacaryas were honoured with this title, in medieval Deccan.[1] There are numerious inscriptions which refer to the names of physicians having *pandita* as suffix to their names It is a noteworthy thing that except a very few, almost all the physicians who were referred in the inscriptions had this term added to their names. Hence we can imagine that the physicians were known as *panditas* as some of the modern Ayurvedic physicians added *Kaviraj*, *Kaviratna*, etc , as prefix to their names.

Śrīnātha's work *Parahita Samhita* is started with an invocatory verse offering salutation to Visnu in the incornation of Hayagriva, the God with the head of a horse. In the next verse, the author prays Iswara, who is addressed as '*Vaidyānātha*' and who is wearing the Moon, the controller of medicines, on his head as an ornament.

Parahita Samhita is not found in full. In Government Oriental

1 *Parahitasamhita*, Introduction, Sri Venkateswara University, Tirupati, 1972.

Manuscripts Library, Madras there is a manuscript work entitled *Parahita Samhita* which contains Aṣṭāngakāṇḍa complete in eight *Adhikaras*, the beginning being wanting in the first *adhikara* The *Adhikaras* are named as 1 .. .... 2 *Kaumāra tantram*, 3 *Bhūtavaidyādhikāra*, 4. *Dēha Cikitsādhikāra*, 5. *Salyādhikāra*, 6 *Sarvaśalyādhikāra*, 7 *Rasāyanādhikāra* and 8 *Vājīkaraṇādhikāra*. The entire first section is lost, except the last page dealing with the effects caused by sleeplessness and regimen to be followed to secure sound sleep This section is expected to be *Kayacikitsa* or internal medicine on the basis of the traditional division of Ayurvedic medicine. The entire manuscript in the Government Oriental Manuscripts Library covers only one aspect i e , the curative medicine, Astangakanda or the part dealing with eight divisions of treatment.[1]

Parahita means doing good to others The science of medicine is considered to be productive of prosperity of the world and which promotes the welfare of the people. With this view, the author named his work as *Parahita Samhita*

The author, it seems, followed the earlier samhita works and some other works of this region earlier to him There can be found some verses here and there, modelled on passages from susruta, Vagbhatta, *Aṣṭāngahṛdayam*, *Rasaratna Samuccayamu*, *Vaidyacintāmaṇi*, and *Basavarājīyamu*[2] Veturi Sankara Sastri proves that the author belongs to Āndhra region on the basis of three facts i.e., the usage of Telugu words such as *Sīsamu*, *nāgali*, etc , the prescription of *Curukulu* (*agnikarma*), which was more prevalent in this region for some particular diseases and the consultation of *Vaidyacintamani* and *Basavarajiyamu* by the author[3]

The manuscript in the Government Oriental Manuscripts Library is in Sanskrit written *Nandinagari* script which was in common use during the time of the Western Chalukyas, the Reddi kings of Kondavidu

1 From this manuscript, Sri Venkateswara University Published only two parts, i.e , Salakya and Salya under title, *Parahita Samhita* There is another work published by M/s Vavilla Ramaswamy Sastrulu & Sons, Madras, in 1952 entitled *Srinatha Pandita Pranita Parahita Samhita, Sadharana Kanda*. The contents of the publication are: 1 *Prathamadhikara*, 2. *Swasthavrttadhikara*, 3. *Dravyaniscayadhikara*, 4. *Aturavrttadhikara*, and 5. *Prayascittadhikara*.

2 *Sridhanvantari*, October, 1951, pp 762 to 764

3 *Ibid*

and the Rayas of Vijayanagara [1] This script had become outdated after sixteenth century. But we do not know whether the manuscript is an original or a copy. There is neither the name of the scribe nor the date of scribing

The influence of *Basavarājīyamu* and *Vaidyacintamani* on the present work proves the fact that it was written after the above two works These two works are believed to have been written in fourteenth and fifteenth centuries respectively Hence we can surmise that *Parahitasamhita* and its author Śrīnāthapaṇḍita belonged to sixteenth century

Some scholars like D V Subbareddy[2] and V Sankarasastri[3] believed that Śrīnātha Paṇḍita belonged to Parahita family of physicians who were referred in the inscriptions of fourteenth and fifteenth centuries D V Subba Reddi writes, "The only significant detail recorded is that the book is called *Parahita Samhita* It is quite likely that Srinatha Pandita was a descendant of one of the Parahita families but belonged to an epoch, a few generations posterior to the famous scholars and physicians mentioned in the inscriptions discovered "[4] He even guessed that the author might be a pupil of *Parahita* physician But we should keep it in mind that the term *Parahita* is not reserved to any one family and any good physician well versed in all branches of the medical sciences and who dedicated his life to the public service in the medical ground was regarded as a *Parahita* in medieval Āndhradēśa

IYIJA ŚRĪNIVĀSĀRYA

Śrīnivāsārya of *Kausika gōtra* who belonged to *Arvela* family was an eminent scholar in Ayurveda He was the son of Raghunāthārya and grand son of Iyija Nāgārya The suffixing word '*Arya*' to the names of his and his predcessors indicates the fact that he belonged to the family of eminent scholars He was the student of Paddanarya A colophon in his work *Cikitsātilaka* gives the above information.[5] *Cikitsatilaka* is a work consisting of five divisions i e., *Sūtra*, *Nidāna*, *Śarīra*,

1 *Bulletin, IHM*, Vol.II, p.202

2 *Bulletin, IHM*, Vol.II, p 206

3 *Sridhanvantari*, October, 1951, p.764

4 *Bulletin, IHM*, Vol II, p 206

5 *Cikitsatilaka*, GOML, Madras, 1953, vv 3 & 4, p.1.

Cikitsa and *Uttarasthāna* and is compiled in thirty chapters. It is an exhaustive work on medicine and closely follows Vagbhatta's *Aṣṭāngahrdaya* In this work, Śrīnivāsa arranged the Sūtrasthāna in forty chapters, *Śarīra Sthāna* in ten, *Nidānasthāna* in sixteen, *Cikitsasthana* in twenty four and *Uttarasthana* in forty chapters. He gave detailed interpretation to the things which were already mentioned by the ancient scholars and added many new things, which he had experienced in his profession. Especially from *Aṣṭāngahṛdaya* he took some verses and incorporated in his work without any change. But some things which are entirely absent or merely mentioned without details in earlier works could be found in *Cikitsātilaka* arranged in a systematic manner and explained in a simple and clear way. But this work is not available in complete *Sūtrasthāna*, the first part of the book is available in the Government Oriental Manuscripts Library, Madras, and is published in 1953

Compared to *Astangahrdaya* of Vagbhata, the *Sūtrasthāna* in *Cikitsātilaka* is simple for the study and gives detailed and consecutive account. In the respect of the composition of the work, Śrīnivāsa can be placed next to the ancient triad. He was a scholar not only in Sanskrit but also in Telugu and Kannada.[1] The colophon in *Cikitsātilaka* reveals the fact that he had the title *Panditarāja* The beginning verse and the ending word "*Śrīkṛṣṇārpapamastu*" indicates that he was a Vaisnavite and the devotee of Dattātrēya

If an author does not mention his date, one should search for the clues from the textual information. The author mentions in *Cikitsātilaka* that Visnu in the combined form of Brahma, Visnu and Maheswara who were responsible for the *srsti*, *sthiti* and *laya* created Ayurveda, coming in the form of Dhanwantari. Dhanwantari in the form of Dattātrēya revealed the science to Agnivesa and others. Such a great science was learned by Srinivasa and was written as *Cikitsatilaka*. These things and the usage of Telugu and Kannada words in his Sanskrit work indicates that he belonged to a period when there was staunch Vaisnava influence and when the Telugu and Kannada areas were ruled as one country It was under the Rayas of Vijayanagara that the Andhra, Kannada and Tamil countries were ruled as one kingdom in the medieval days. And it was after the Sangama period that Vaisnavism became very much wide spread in the Telugu country. Śrīnivāsa while mentioning the characteristics of Ayurveda incorporated a verse taking

1 He used many Telugu and Kannada words in his work, especially while explaining the *dinacarya*, *rtucarya* and the materia medica.

from *Bhāvaprakāsa* without any change.[1] Bhāva Miśra was alive in A D.1535 teaching Ayurveda in Kasi University. He might have wirtten his work before that time Then it must be that Śrīnivāsārya belonged to a period not earlier than A.D 1550. The author of *Yōgaratnākara* introduced apple in his work which was brought from the western countries probably in the later part of sixteenth century. Srinivasa who explained the ingredients of many fruits did not mention apple. All these facts help us to conclude that Śrīnivāsārya belonged to a period between the last quarter of Sixteenth century and the first quarter of seventeenth century A.D.

Śrīnivāsa's native place Iyija is situated in the border area of Telugu and Kannada states It seems that he served the people of both the areas and became famous in these places He wrote his work to make it easy to the physicians of both the areas using Telugu and Kannada words He used more Telugu words than kannada words in his work. At the end of his work, Śrīnivāsa wrote that he composed the work keeping in mind many kinds of medical works and in accordance witn all kinds of philosophical thoughts It means that Srinivasa was well acquianted with all the other systems of medicine and was proficient in different methods of Ayurvedic medicine

Śrīnivāsa, by giving the particulars about the other chapters, helped us to know the contents of his great work. He explained the fevers following the ancient works like *Mādhavanidāna*. In *Sūtrasthāna*, *Pancakarma* was explained in detail In the *Sūtrasthāna* of *Aṣṭāngahṛdaya*, the methods of doing *pancakarma* which help in the excretion of waste material from the body are given completely. But "no complete account is given of how the necessary medicines for them are obtained or how the dangers that may result are overcome Without knowing these, no one should undertake to do *pancakarma*. But these are found thrown in some of the later parts of the same book. Similar is the case with *Carakasamhita*. If all the facts relating to *Pancakarma* were grouped together and arranged well, it would have facilitated quick, easy and complete study of the subject This lack is remedied by Śrīnivāsārya in the *Sūtrasthāna* of his book *Cikitsātilaka*. All the details relating to *Pancakarma* are completely dealt with "[2] The characteristics

1 *Ayurhitahitamvyadhrnidanam samanamtadha - Vidyate yatra dhimatbhih sa Ayurveda yate - Bhavaprakasa*, I v 103, *Cikitsatilaka*, Sutrasthana, v.22.

2 V S.Venkata Subrahmanya Sastri (ed), *Cikitsatilaka*, GOML, (Madras, 1953), No.CVIII, p.xxi.

of the various ingredients of the medicine, their tastes, effects, etc , which are breifly mentioned in *Astangahrdaya* are very well arranged with useful commentaries in forty chapters and with appropriate titles In the *Uttarasthāna* of *Cikitsātilaka*, the regiment to be followed by all, from kids to elders, paediatrics, the treatment of nasal and ear diseases and the diseases of throat, etc , are explained The treatments for the bites of the poisonous creatures such as serpants, the *rasayana* medicines etc were also incorporated.

With regard to the improvements made on the old works, V S Venkata Subrahmania Sastri writes, "There are found in this book, sure and effective medicines for treating corpulence, undue slimness, sleeplessness, excessive sleep, etc., and the uses of substances like musk, saffron camphor etc , and flowers like jasmine, rose, lotus etc , in medicine The healing qualities of breast-milk, the preparation of plantain juice, the significance of fire, sunlight, moonlight, darkness, lamp, looking at the mirror, etc , are well set forth in this book The cure of cholera, treatment of persons rescued from drowning and various other useful methods and medicines are given in this book "[1]

The way that he concluded the work reveals his noble mind. He begs the elders of his time to accept his humble contribution. In the experience in medical profession and in the exposition of medical work, he can be mentioned as an equal to the ancient *triad* It is a pride to the Andhras that such a great physician who wrote such a great work which confirms to the basic principles laid down by the Indian sages, which is the outcome of wisdom and perception of eternal values in medicine and which can be understood easily even by the men of slow understanding But it is an unfortunate thing that such an useful work is not available in full It is the responsibility of the future scholars in Ayurveda and history to search for the remaining part and bring it into light to enrich the cultural and scientific contribution of Andhradesa to Indian heritage

TRIMALLABHATTA

Among the medieval scholars who dedicated their lives for the development of indigenous medicine, Āndhra Brahmana Trimallabhaṭṭa was the one. He wrote nearly eight great works dealing with many aspects of Ayurveda. They are:

1 V.S Venkata Subrahmania Sastri (ed), *Cikisatilaka*, p xxii.

Dhanwantarīya Nighaṇṭu[1]

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Ṣaḍṛtuvarṇanam[3]

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Yōgatarangiṇi in Telugu and *Bṛhadyōga Tarangiṇi*[7] in Sanskrit. The palm-leaf manuscript copies of his works are found available throughout India. Among these works, *Dhanwantarīya Nighaṇṭu*, *Sataslōki* and *Yōgatarangiṇi* are published.

Trimallabhaṭṭa gave the genealogical line of his family thus:

Singanabhaṭṭa
|
Vallabha
|
Trimalla — Rāma — Gōpa

He mentioned that he was born in Tripurantakam situated in Trilingadēśa. He belonged to Āpasthamba sutra and born in Ārvēla niyōgi family[8].

All his works are wide spread all over the country and were referred by many scholars of seventeenth century. Especially, *Dhanwantarīya Nighantu*, a medical dictionary and *Yōgatarangiṇi and* Bṛhadyōgatarangiṇi were studied by the medieval medical students.

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Yōgatarangiṇi consists of the therapeutics explained in brief in 81 *tarangas* *Bṛhadyōgatarangiṇi* consists of 148 *tarangas*. He explained in this work many things such as *Śarīra* (anotomy) *dravyaguṇa*, *Rasaśāstra*, *Swast avṛtta*, *Ariṣṭālakṣaṇa* and *Rōgiparīkṣa* including the traditional eight branches of Ayurveda, P V Sharma wrote that Trimalla gave referrence from *Śārṇadhara Samhita*, *Madanapālanighanṭu*, *Lōlambarājīyam* and *Bhāvaprakāśa*. Trimalla's verses appear in *Yōgaratnākara* P V.Sharma opines that Lōlambarāja belonged to the first quarter of Seventeenth century and *Yōgaratnākara* to the second half of seventeenth century On the basis of it, he came to the conclusion that Trimallabhaṭṭa might have written his works in the middle of seventeenth century.[1] But it is not correct since the date of Lōlambarāja is wrongly estimated. Lōlambarāja belonged to fourteenth century A D On the basis of the *materia medica* given by Trimallabhaṭṭa, it seems that he belonged to sixteenth or seventeenth century He gave references from Bhāvamiśra's work which belonged to the middle of sixteenth century. Trimalla referred to *phirangirōga* which started spreading in India in the first half of sixteenth century. The author of *Yogatarangini* who is said to have belonged to the later half of seventeenth century, referred some verses from *yōgatarangiṇi* of Trimallabhaṭṭa P V Sharma puts forth the probable date of *Yogratnakara* after a careful examination of the textual evidences, as between A.D.1610-1640 [2] Then the works of Trimallabhaṭṭa must have been written before this time and after *Bhāvaprakāśa* i e , A D 1575-1600

His brother Rāmāpaṇḍita Vaidyulungaru received a grant of land in Nadendla (Guntur dt) from Rajadhiraja Raja Parameswara Śrīvīrapratāpa Śrīvīrarangarāyadēva Mahārāya in the cyclicyear pramādi (A D 1580).[3] He was just younger to Trimalla Rama was mentioned as a *Kāryakarta* to Gobburi Devamaharaja. This record acts as a corraborative evidence to prove that Trimalla belonged to the second half of the sixteenth century (A D 1550-1600).

SOMAYA

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3 *SII*, V - 130.

instruction by Lord Dhanvantari to the sage Agastya This kind of narration of the Ayurvedic science, as revealed by Dhanvantari to Agasthya is a strange practice This indicates that the author had a great regard for *Siddha* school of medicine.

After paying homage to his *guru*, Somaya gave the genealogy of his family There was Brahma Viswakarma with five faces i e, Sadyojata, Vamadeva, Aghora, Tatpurusa and Isanya Respectively from these five heads, were born five Brahmas i e, Manubrahma, Mayaviśwakarma, Tvastra Viśwakarma, Śilpi Viśwakarma, Japati and Viśwajna Vidhāta Among the descendants of Tvastra Viswakarma there was one Pōlaya, a devotee of Lord Siva, in the gotra of Abhavanasa Rama was his wife and to them was born Chinnaya To Cinnaya and Kannamāmba was born Somaya Somaya did not give any other information, about his family except this He mentioned that his *guru* was Gānugapalle Pāpaya [1] Papaya might be an agraharika in the village Gānugapalle imparting education to the students Gānugapalle or Gānugapāḍu is in the present Tiruvūr taluk of Krishna district Sōmaya might have gone to his *guru* from the nearby village and studied under him

Sōmaya confessed that he was writing this medical work in Telugu after collecting the essence of the medical works, *Divya cintāmaṇi*, *Rasapradīpikā* and *Bāhaṭam* with the hope that it be appreciated by the other physicians till eternity So far, only one copy of this medical work is available On the first leaf of the manuscript, the date of the starting of the work is given in the cyclic year with *tithi*, etc After the end of the first *asvasa* also the date is given as *Svabhānu*, *Phālguṇa*, the eleventh day of the bright fort-night It seems it took approximately 22 days to complete the first *asvasa* having 15 leaves both sides The first date tallied with two i e., 1-2-1404 and 19-1-1644 Basing on all this information and on the condition of the manuscript, B Rama Rao decided the first date of the manuscript as 19-1-1644 He further says that "the date of composition may also be taken as the same or slightly earlier. Further, the beginning and arrangement of contents follows the prabandha tradition The author also calls it as a *Prabandha* – Thus the author Somaya may be placed in the first half of the seventeenth century".[2]

Bhiṣagvarānjanam is divided into three *āśvasas* The author

1 *Bulletin, IIHM*, Vol IV(3 & 4), p 136

2 *Bulletin, IIHM*, Vol IV(3&4), p 137

deals with *astasthānaparīkṣa*, *Jwara* (fever) and *ajīrṇa* (indigestion) with their causes and symptoms in the first *asvasa* The second *asvasa* deals with the method of the purification and actions of 34 herbs and minerals This *asvasa* deals also with the methods of preparing eleven *bhasmas* and *sindhūras* In the third *asvasa*, the author gave the information about the processing and therapeutic uses of 26 traditional compound preparations and 41 decocations Dr B Rama Rao and V Sankara Sastri who have studied the work in comparision with the other medical works i e , *Vaidyacintāmaṇi*, *Basavarājīyamu* and *Śarabharājīyamu* came to the following conclusions "Most of the details regarding Aṣṭhasthāna Parīkṣa, fevers, varieties of sannipatas etc , resemble these mentioned in these books There appears to be a discrepancy in the periods of attack of *tāndrika* and *Cittavibhrama Sannipātas* The methods of Sindhura proparation of copper and purification of mica are different from other texts Some compound preparations mentioned in this work do not appear in other medical texts The composition of 41 decoctions seem to be based on the author's personal experience "[1]

Thus it is clear that Sōmaya was an enthusiastic physician who showed great interest in his profession especially with regard to the developmental methods. He carefully observed the new diseases and introduced some strange compound preparations and decoctions They all seem to be based on his own experience in the profession. Hence Sōmaya was undoubtedly a great researcher and scientist in the field of medicine in the later medieval period

TUḶḶŪRU ŚARABHARĀJU

Śarabharāju was a great poet, a scholar, an astrologer, an expert in performing charms and magic, a mathematician and a great physician. He was a Saivite But he had tolerance towards the other paths in the Hindu religion. He mentioned in the colophon of his work *Śarabharājīyamu*, that he wrote the work with the grace of Lord Vēṇugōpāla and by the command and grace of Lord Ānjanēya He dedicated his work to Lord Ānjanēya of Komerapūḍi village It is situated in the present Sattenapalli taluk of the Guntur district.

The scion of the family of Śarabharāju is mentioned as Sivadēvayōgi, the minister of Prataparudradeva of Kakatiya dynasty. Their family name came to be known as Tuḷḷūru family as they get the

1 *A Des.Cat.Tel.Mss.*, Vol XI, Nos.D.2453 - 55

Tullure village (Guntur district) as an *agrahara* from Prataparudra among the nine *agraharas* which he donated But after sometime, some of the family members of Śarabharāju might have migrated to Sattenapalli region in search of some patronage or he might have chosen it as a proper place to continue the profession as a physician

Śarabharāju was not only a scholar-physician but also a poet He stated that he wrote *śṛngārasudhārṇavam*, *Prajnāvatī Rāyabāramu*, *Lavalīvivāham* and also a number of *Satakas* *Śarabharājīyamu* is the only medical work that is available on his name This work too could not be completed by him, due to his premature death and later it was completed by his son Madhavarya [1]

Śarabharājīyamu is an interesting work written in Telugu verse form Śarabharāju started his work with the eight fold examination of the pulse, urine eyes, etc , and deals with the preparation of different medicines like powders, medicated oils, pastes, ghees, pills, etc and the treatment of some important disease like fever, consumption, skin-diseases, venereal diseases, jaundice, etc The prescriptions are given in accordance with the availability of the *materia medica* in this region Some are based on *Basavarājīyamu* and some others like the prescription to the venereal diseases are new perhaps his own inventions He identified and categorised 18 kinds of venereal diseases as a development over 12 kinds explained in *Virabhattiyamu*, a former work. He named them as 1 *Kharjūrasavā*, 2 *tilakālasavā*, 3 *barbara*, 4 *caccha*, 5 *ṭākisavā*, 6 *vipāṭikā*, 7 *twagwarasavā*, 8. *vandhyasavā*, 9 *śukravarṣinīsavā*, 10. *nakhārtisavā*, 11 *pāmā*, 12 *boganasavā*, 13 *rēfāntikā*, 14 *citrasavā*, 15 *śuṣkasavā*, 16 *daddurusavā* 17 *kamasavā* and 18 *vispōṭakasavā*

The work is not available in complete. The style, presentation and the language used indicate that it is not too old He followed the prescriptions of Basavarāju who belonged to the fifttenth century The *pariṇaya* type of kavyas were mostly written in the fifteenth century. The type of *kavyas* said to have been written by Śarabharāju seem to be the works of the later medieval period. The cult of *Āñjanēyabhakti* also became widespread during the seventeenth century Many scholars of this period dedicated their works to God Ānjanēya Hence keeping in view the above mentioned general things, it may not be inappropriate to consider him as a seventeenth century physician.

1 *Bharati*, July 1938, p.504

MUḌUMBI VĒNKAṬACĀRYA

Venkaṭācārya was a Śrivaishnava and belonged to *Śrivatsa gotra* He was the son of Muḍumbi Vedanṭacarya Vedadri Laxmi Narasimha Swami was their family deity Venkatacarya was a scholar-physician and translated Sanskrit *Rasapradīpika* into Telugu It was widely read in the Andhra region In the Government Oriental Manuscripts Library, there are four copies of it [1] In the introductory verses of this work,[2] Vēnkaṭācārya gave some information regarding his personal life He mentioned that his *guru* was one Bhattaru Narasimhācāryulu, whom he described as Mahavisnu and an incornation of Dhanwantari Vēnkaṭācārya also mentioned that it was because of his *guru's* grace that he gained knowledge in Sanskrit and Telugu In the science of medicine, he first studied the works of the ancient triad i e , Caraka, Susruta and Vagbhata He was well versed in Susruta's *Śārīra*, Vagbhata's *Sūtrasthāna* and in Agasthya's *Rasatantra* He stated that he gained practical knowledge also in these It was an usual custom in Āndhradēśa among the teachers in Ayurveda to instruct their pupils in Madhava's *Nidāna* (diagnosis) Susruta's *Sarīrasthāna* (Anotomy), Vagbhata's *sūtrasthāna* (principles of medicine) and Caraka's *Cikitsa* (therapeutics) The medieval scholars believed that if one was thorough with these, he need not go for any other source and one must study these basically Vēnkaṭācārya stated that he studied all these and *Rasatantra*, the South Indian school of medicine He also studied the famous medical text of medieval Āndhradēśa i e , *Bāhaṭagrantha* of Bāhaṭa

Vēnkatācārya lived in Vedadri which is situated in the present Krishna district It seems that he dedicated his life for the service of human-beings extending them medical aid Venkatacarya had the title *Vaidyavinoda*, which means that one who takes pleasure in extending medical services to the human-beings The area around Vedadri was rich in the availability of drug-substances That's why he was able to do research in the preparation of various kinds of drugs In his work Telugu *Rasapradīpika*, he mentioned many new procedures in the *māraṇa* (calcination) and *śōdhana* (purification), of rasas which he discovered out of his own experience. In the first chapter of the Telugu version, *Adhaḥpātana* of mercury and two methods of *Sindhūra* are new. In the *anupanas* of *sindhura*, eleven verses of Sanskrit work are not trans-

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1 *A Des Cat. Tel Mss* , Vol XI, Nos D.2453-55

2 *Ibid* No D 2453

lated.[1]

Vēnkaṭācārya's Telugu *Rasapradīpika* is in the form of instruction by Agasthya to Ātrēya as revealed by Asvins to Dhanvantari But this is not mentioned in the Sanskrit work The Sanskrit work is in four chapters, but Vēnkaṭācārya's work is in three chapters, the third and the fourth chapters clubbed into one

In the second chapter, the purification of *vimala, saśyaka* and *rasaka*, etc are described But the description is different from the original and it is according to *Rasaratna Samucchaya* In the third chapter, Vēnkaṭācārya added the description of nine gems and the respective planets and the purification of *pravāla*, which we do not find in the original work where as the description of *nīla*, *gōmēdhika* and *vaidhurya* and the description of *sarvapāṣaṇasuddhi* of the Sanskrit work are not found in the work of Vēnkatācārya His work is a great contribution in the medical ground since a famous work like *Rasapradīpikā* appeared in the regional language as more useful to the physicians and the medical students of those days

It seems that he was a temple physician in the Laxmīnarasimha Swāmi temple at Vedadri He mentioned in the colophon that he got his knowledge out of the grace and at the feet of Lord Laxminarasimha of Vēdādri He also paid his obeisance to God Anjaneya Almost all the Vaishnava physicians who belonged to the later medieval period in Andhradesa prayed or dedicated their works to Lord Ānjanēya

Vēnkaṭācārya was not only a physician but also a poet We do not know how many books he wrote. But there is only a manuscript copy of his work *Dēvahūtivilāsamu* available now in the library of Andhra University.

1 *Bulletin, IIHM*, Vol.V, pp.125-127

II. SCHOLARS IN VETERINRRY SCIENCE

MANUMANCHIBHATTA

He was an asvavaidya under the patronage of Saluva Kamparāya, the governor of Kandanavolu (Kurnool) With the help of epigraphical and other sources, scholars decided the period of Saluva Kamparāya[1] and his *asvavaidya* Manumancibhatta as the mid fifteenth century Manumancibhaṭṭa's patron was the son of Chayamma and Aubhaḷarāya In the inscriptions he is mentioned as *Mahamaṇḍalēśvara* We do not get much information about Manumancibhaṭṭa as the introductory verses are found missing The colophon of his work runs thus "In *Hayalaxaṇavilāsa*, a work written by *Paramapavitra* Manumancibhaṭṭa, son of Bhairavācārya who is admired by all the good people, one who is an expert in writing poetry and one who is a scholar in all languages – – –" Except this, he did not give any information about his life.

The political condition of Vijayanagar empire at that time forced the rulers to strengthen their cavalry in their army They were to fight with the Muslims to safeguard the borders of their empire and to withstand the aggressions of the Muslims who had much powerful cavalry The Vijayanagar rulers realised the basic weakness of their army. Their horses were of poor quality and inspite of their care in getting good quality horses, they were not able to maintain a strong cavalry Soon after Saluva Narasimha came to the throne, he tried to improve the conditions of the cavalry in order to make his army strong enough to resist the musalmans He encouraged the Arab merchants to sell well-bred horses by offering liberal prices The importance attached to this import was so great that "he caused horses to be brought from Ormuz and Adoom into his kingdom and thereby gave profit to the merchants, paying them for horses just as they asked. He took them dead or alive at three for a thousand pardaes and of those that died at sea, they brought him the tail only and he paid for it just as if it had been alive "[2] Saluva Narasimha showed keen interest not only in securing horses of good quality, but also in recruiting the young and worthy men

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1 Dr.P Srirama Sarma, *Saluva Dynasty of Vijayanagar*, Prabhakara Publications, Hyderabad, 1979, pp 51,52 and 70&71

2 *Forgotten Empire*, p.294

as generals and soldiers He infused in them a new spirit of dedicated service That's why the governors like the governor of Kurnool, Saluva Kamparaya took such a keen interest in maintaining 'strong cavalry'. To maintain a healthy and good quality of horses in a systematic way, a person who had the knowledge of a science like *asvayurveda* was needed That's why he might have appointed Manumancibhatta, an expert in this science to supervise the department and to guide the other *asvavaidyas* Manumacibhatta compiled a work entitled *Hayalaksanavilasamu* and dedicated it to his patron

Manumancibhaṭṭa did not mention which book in Sanskrit guided him in composing this work Some verses from *Aśvaśāstra*, which is attributed to Nakula, can be seen in *Hayalakṣaṇavilāsamu* as tranalated without any change. But we cannot say that he translated the same work as they differ completely in many places. Hence it may be that Manumanchibhaṭṭa with the knowledge gained out of his extensive reading of many works on *Asvasastra* compiled a work taking many things from the sources which he found very useful in the then prevailed conditions As he mentioned in the work that he was going to describe only the "curable diseases", he appears to be not only a great scholar but also a good physician treating the diseases of horses

In the available part of *Hayalaksaṇavilāsamu*, there are altogether, 377 verses including the verses written here and there in the works of other scholars The work is divided into five chapters In the first chapter, the appraisal of cavalry is mentioned In the second one is mentioned the description of curls in hair (*suḍulu*) which helps in finding out the characteristics of the horses and the nature of diseases that might attack them and their longivity of the horses etc. The third chapter deals with the longivity of the horses In this chapter, the anatomy of the horses is described. About 80 different places of the body of horse are described with their measurements. The method of identifying the life time of the horses basing on the number of milk-teeth and permanent teeth is widely explained here In the fourth chapter, the defects of the horses in the body and their effects are discussed The fifth chapter contains the treatment In this chapter, as mentioneed by Manumancibhaṭṭa, only the curable diseases are explained and are given the therapeutics. Hence all the diseases and the treatment explained in this chapter must have been the very common diseases of the day. He explains the cause for a disease in horses is mainly due to the imbalance of *vata*, *pitta* and *kapha* The treatment also is prescribed in accordance with the imbalance of relevant *dosa* Thus the main aim of treatment is

to maintain the equilibrium of the *tridosas* Then follows the *rutucarya* and after that many common diseases and their therapeutics are mentioned

Thus *Hayalaksanavilasamu*, with excellent scientific remedies to so many diseases of horses in those days might have helped undoubtedly, not only the *aśvavaidyas*, but also the governors and kings who were very eager in maintaining powerful cavalry. It contributed for the development of efficiency of Vijayanagar cavalry in subsequent times.

MADHAVACARYA SALADU

He was the author of a medical work "*Cikitsāsārasangrahaḥ*" also called "*Tribhuvana Tilaka*" [1] The word "*Sālaḍu*" means an *aśvavaidya*. In Sanskrit it is "*Sālastri*" Here the ending letter "*du*" is a characteristic feature of the Telugu name In Medieval Āndhradēśa, especially during 14th and 15 th centuries, there were many scholars on this name That's why it seems, this doctor of horses was popularly called as *Sālaḍu* Mādhavācārya, just to avoid confusion His work reveals the fact that he was a great scholar in Ayurveda and an expert practioner. Thus it is clear that like Mallāripaṇḍita, he was a scholar not only in Ayurveda but also in veterinery science, especially in the branch dealing with the treatment of horse-diseases Only one palm-leaf manuscript copy of this work is found available in the Government Oriental Library, Mysore,[2] written in Telugu script No other details are available to find out the date of the author His scholarship in both the sciences indicates that he might be a physician attending the war-camps to treat both soldiers and the horses. '*Sālaḍu*' might be the designation of his post.

MALLARI PANDITA

He was a scholar not only in Ayurveda but also in the veterinary science He wrote an *asvaryurveda grantha* known as "*Aśvāyurvēda Sārasindhu*"[3] or "*Sārasindhu*" and a general medical work known as *Vaidyakalpataru*. The colophon of *Aśvāyurvēda Sārasindhu* informs us

1 *A check-list of Sanskrit Medical Manuscripts in India*, CCRIHM, New Delhi, 1972, pp.17, Nos 203 and 204

2 *O L M*, 5216.

3 *A check list of Sanskrit Medical Manuscripts*, p.19 No.73.

that Mallādēvapandita was the son of Kesavapandita

Two palm-leaf manuscript copies of *Vaidyakalpataru* are available now [1] The colophon of this medical work also mentions Mallāri Paṇḍita as the son of Kēsavācārya His preceptor Amarēśwara was mentioned as the son of Cina Vallabha Paṇḍita who belongs to Parāśara gōtra Amarēśwara Paṇḍita was mentioned as a great scholar and had the title "*Kavi Vaidya Trinētra*" [2] Mallāri pandita was mentioned as not only a great scholar but also a great physician It is mentioned that his poetical talent and art of of healing stood exemplary to the other scholars of the day

The Drākṣārāma inscription dated A D 1430[3] registers the grant made by one Annaya Paṇḍita, son of Kēśavācārya of Gautama gōtra Annayapaṇḍita is mentioned as Vaidyēndra It seems that it was a family of physicians Mallāri Paṇḍita might be his another son

NĀRAYĀMĀTYA

Nāraya was an *aśvavaidya* and seems to have held a post equal to a minister He might be an *aśvavaidya* in the cavalry of the Rayas of Vijayanagara empire He wrote a Telugu work known as "*Śālihōtrīyam*"[4] containing the therapeutics to the diseases of horses It became very popular and was translated into many Indian and foreign languages His work can be divided into two parts - 1. Anatomy and 2 Diagnosis and treatment As Nārayamantri mentioned that he was going to write on the physical characteristics of the horses, their longivity and their other characteristics, it seems that he did not deal with the diagnosis and treatment part in this work His another work "*Sahadēva Paśuvaidyaśāstramu*"[5] is mentioned as a Telugu rendering of a Sanskrit work One Narana, who was a desciple of Vidyāraṇya, wrote "*Naiṣadhadīpika*", a commentary on the *Naiṣadha* [6] If this person and the author of the works in veterinery science were one and the same, then the date

1 *GOML* R 5489

2 *A S C* G 10491

3 A Des Cat. Tel Mss , GOML, Madras, Vol XI, No D2452, pp 2724-25

4 *A Des.Cat Tel Mss* , GOML, Madras, Vol XI, No d2743, p 2743

5 *Ibid*, Nos 2475 to 2478, pp 2704-45

6 T.V Mahalingam, *Vijayanagar Social Life*, p 266

of these compositions can be considered as the second half of the fourteenth century The suffix "*Amātya*" to his name hints the fact that he might have worked as an advising officer in the cavalry of the Sangama kings of Vijayanagar empire

III. MATHEMATICIANS

PAVULURI MALLANA

During the ancient period, scholars of Āndhradēśa used to compose their kavyas or scientific works in Prakrit After sometime, especially from the Satavahana period, Sanskrit received much patronage and respect As it could be conveyed to the people from Sētu to Sītāchala, scholars preferred to write in this language- Particularly, in the writing of scientific works, Sanskrit was regarded as classical and appropriate But after Nannaya's translation of Mahabharata into Telugu, scholars realised the importance of literary compositions in regional language The scientists also agreed upon the usefulness of scientific works in Telugu in many ways Thus appeared the first scientific work in mathematics known as *Sarasangrahaganita* by Pavuluri Mallana Mallana belonged to a *niyogi* sect of Brahmins, a sect which was famous for its scholarship in mathematics. His grandfather also was a scholar who received 'Navakhaṇḍavāḍa' as an agrahara from Rajarajanarendra (A.D.1019-1061). Hence we can say that he lived 50 years after his grandfather Mallana, i.e., at about A D 1100 in Kammanati vishaya Professionally, Mallana was a revenue officer His work was a translation to *Gaṇitasārasangraha* written by Mahāvīrācārya in Sanskrit. But it is a free translation where we find many changes from the original. He briefed the things at some places and analysed at some other places where he found it necessary according to the needs of the day At some places, he gave his own examples basing on the principles given by Mahāvīrācārya

Mahaviracarya was a Jain scholar who was honoured by the Rashtrakuta king Amōghavarsha I (A.D.814-880) He expressed his regard to Jainism wherever he found an opportunity in his work. But Mallana was not so tolerant to keep it as it was He transformed it as a Saivite work by replacing the Jain cultural elements which reflected in the original by Saiva elements. The original Sanskrit work gives the weights and measures in accordance with the systems prevailed in 9th c.A.D whereas the work of Mallana contains the examples of the cases prevailed during the medieval period in Āndhradēśa Mallana gives an account of the weights, measures and the coins that were in vogue and the exchange value of different coins of the day.

At the outset of his work, Mallana explained the importance and

usefulness of the science of mathematics It is said that the Science of Mathematics is useful in understanding Astronomy, Astrology, Logic, Grammar, Agamasastra, revenue matters, etc Mahāvīrācārya, in his work *Ganitasarasangraha*, explains the subject in eight chapters dividing thus 1 Parikarma, 2. Bhinna, 3 Prakīrṇa, 4 Trairāśika, 5 Miśra, 6 Kṣētra, 7 Khāta and 8 Chāya Pāvulūri Mallana divides the fifth chapter into three and names them separately Thus his work consists of 10 chapters 1 Parikarmagaṇita, 2 Bhinnagaṇita, 3 Prakīrṇagaṇita, 4 Trairāśikagaṇita, 5 Miśragaṇita, 6 Sūtraganita, 7 Suvarṇagaṇita, 8 Kṣētragaṇita, 9 Khātagaṇita and 10 Chāyāgaṇita

Among his contributions, mention must be made of the presentation of 36 digits in counting. In the original, the author explained the counting upto 24 digits Āryabhaṭṭa, the first renowned Indian mathematician identified the counting upto 11 digits Bhaskara explains 30 digits The western mathematicians observed only seven digits Mallana explained the counting of numbers upto 36 digits

In the beginning of the work, Mallana makes it clear that he took his problems from the practices followed in Andhradesa He used the synonimous or symbolic words to the numbers beginning from zero and one to nine as given below

1· *Śaśi*, *Śasānka*, *Sōma*, *Candra*, *Mrgānka*, *Indu*, *Kaḷādhara* (=Moon), *Praḷaya* (the final destruction of the world), *bhūmi* (the earth)

2· *akṣi*, *cakṣu*, *nētram*, *lōcanam*, *dṛṣtidwayam*, *nayanam* (the eyes), *karam*, *bāhukarṇakam*, (the trunk of an elephant), *ambakam*, *yugmam* (pair)

3 *Vahni* (fire), *Rama*, *ratnam* (triratnas), *dahana*, *pāvaka*, *anala* (fire), *śankarākṣi* (the third eye of Śiva), *trilōka*, *tripura*, *trikāla*, *triguṇa*

4 *abdi*, *sāgara*, *ārṇava*, *jaladhi*, *nīradhi*, *brahmāśva*, *vanarāsi* *yuga*, *vēda* (which are 4 in number)

5· *indriyam*, *pancamam*, *jnānam*, *kāvyam*, *mārgānam*, *bāṇam*, *vratam*, *bhūta*, *pṛdhivi*, *jala*, *tēja*, *vāyu*, *viṣaya*, *śara*, *muṣṭi*, *kalyāṇa* and *bhūṣaṇam*

6· *ṛtu*, *śāstra*, *rasam*, *darśanam*, *angakam*, *tarkam*, *saḍguṇam*, *ṣaṭkam*, *dravyārdham*

7: *adri*, *śailam*, *acala*, *giri*, *naga* (the Seven Hills), *aśva* (saptasvas), *gōtraka*, *muni* (symbolic of the seven great

saints)

8 *astamam* (eight), *gajam*, *diggajam*, *danti*, *hasti*, *mattamātanga* (symbolic of the eight elephants guarding the eight sides of the earth), *dwiradam* (2×4 = 8), *pannagam*, *vasu* (astavasus), *varnam*

9 *navamam* (nine), *nandanam* (the Nanda kings are nine in number), *Brahma* (navabrahmas), *purusa*, *nidhi*, *graha*, *vēdha* (all are nine in number)

0 *ākāśa*, *gagana*, *śūnya*, *ambaram*, *marutpadham*, *tārāpadham*, *viṣṇupadham*, *vyōmam*, *divi* (all the words are synonyms to the sky) and *puṣkaram*.

In the first chapter of his work i e , *Parikarmagaṇita*, Mallana explained very vividly with examples the additions, subtractions, multiplications, divisions, root, square-root, cube, cube-roots preparation of balance-sheets, etc In multiplication, five methods, i e , 1 *anukramaṇa*, 2 *vilōma*, 3 *rasyārtha*, 4. *khanda*, 5 *tatakhastamu*, are explained He expalined these with examples In each simple verse, he showed solutions to many sums

For example

yenimidi dakkaka dakkina
yenimidi lekkalanu varusaniḍi navaguṇamai
chanaga dadviguṇadūla
nenayamgala phalamulella nerigimpumilan

Arrange the eight numbers except eight in sequence and multiply with 9 In the next step, proceed multiplying the multiple with 2,3,4,5 etc , and see the answer

12345679 × 9 = 111111111

12345679 × 9 × 2 = 222222222

12345679 × 9 × 3 = 333333333

12345679 × 9 × 4 = 444444444

12345679 × 9 × 5 = 555555555

aarunokkaṭla noppuga namarabeṭṭi
yantha guṇakambu chētanu naramabenchi
sondi varṇimcha janulaku chōdyamagunu
hima karōpama labdhambu nenayavacchu

Multiply six ones with six ones and you will find the answer

(within six numbers) as in the movement of the Moon in one circle

111111 × 111111 = 12345654321

yēḍumūḍu sunnayēḍu mūḍunu
yēḍumūḍu lekka lessanilpi
mootitōḍa benchi mudamuna lekkimchi
guṇakaphalamu telpu gaṇakatilaka!

It explains the following sum

37037037 × 3 = 111111111

37037037 × 3 × 2 = 222222222

37037037 × 3 × 3 = 333333333

37037037 × 3 × 4 = 444444444

37037037 × 3 × 5 = 555555555

37037037 × 3 × 6 = 666666666

37037037 × 3 × 7 = 777777777

37037037 × 3 × 8 = 888888888

Making use of the symbolic numbers, he explains an eas division with 37 in another verse thus

brahmasōmulu brahmabāhulu brahmarāśulu vārthulun
brahma sankhyanu brahma sāyaka brahma tarka vitānamul
brahma bhūdhara brahmavārana brahmapadmaja rāsulun
brāhmaṇōthama muppadēḍita chālugonnadi cheppuma!

111111111 − 37 = 3003003

222222222 − 37 = 6006006

333333333 − 37 = 9009009

444444444 − 37 = 1200120012

555555555 ÷ 37 = 1500150015

666666666 − 37 = 1800180018

In the third chapter Prakirnaganita, are given the ten systen involved in the chapter. Mahāvīrācārya and Mallana arranged these te contents in the following manner·

	Mahāvīrācārya		Mallana
1	Bhāgajāti	1	Bhāgajāti
2	Sēṣajāti	2.	Bhāgamūlajāti
3.	Mūlajāti	3	Śēsamūlajāti
4	Sēṣamūlajāti	4	Śēṣamūlabhāgajāti
5	Dwirāgraśēṣamūlajāti	5	Śēṣabhāgajāti
6	Amśamūlajāti	6	Dwirāgraśēṣamūlajāti
7	Bhāgābhyāsajāti	7	Amśamūlajāti
8	Amśavargajāti	8	Bhāgasamvaraṇajāti
9	Mūlamiśrajāti	9	Hīnajāti
10	Bhinnadṛśyajāti	10	Bhinnadrsyajati

According to Bījagaṇita, the principle of bhāgajātikaraṇa =

$$x = \frac{a}{1-a}$$

In the original, the Bhāgajāti and śēṣajāti are given separately whereas Mallana treated them as the same and expalined the principle as [1]

$$x = \frac{a}{(1-b_1)\ (1-b_2)\ (1-b_3)\ \text{etc}},$$

The principle in *bhāgamūlajātikaraṇa*[2] =

$$x = \left[\frac{\frac{c}{2}}{(1-b)} + \frac{a}{(1-b)} + \left(\frac{\frac{c}{2}}{(1-b)}\right)^2\right]^2$$

The Śēṣamūlajātikaraṇa Sūtra is given in a simple way comparing to the original [3]

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1 T.Kodandaramaiah, Pāvulūriganitamu, *Bharati*, June, 1961, p 78.

2 *Ibid.*p 79

3 Kodandaramaiah, T *Opcit* p 80

According to Mallana, the principle is

$$x-bx = \left(\frac{c + \sqrt{c^2 + 4a}}{2}\right)^2$$

According to Mahāvīrācārya

$$x-bx = \left(\frac{c}{2} + \sqrt{\left(\frac{c}{2}\right)^2 + a}\right)^2$$

It can further be simplified as $x - bx + (c\sqrt{c - bx} + a) = 0$

Mallana expalined the principle of *Śēṣamūlabhāgajātikarana* also thus

$$x = \left[\frac{\sqrt{1 + a + c^2} + c}{2}\right]^2 \div (1 - b)$$

If we get the value of X-bx according to the principle of *Śēsamūlajāti*, we can get the value of X with the help of this principle [1]

Some times Mallana tries to analyse the principles laid down by the original author For example, in the original, the principle of *dvirāgraśēṣamūlajātikaraṇa* is given as

$$\frac{c}{(1-b_1)(1-b_2) \times etc} \;\&\; \frac{c_2}{(1-b_1)(1-b_2) \times etc.} + a_1$$

Mallana's principle seems to be an analysis to the original It can be expressed as follows [2]

$$x = \frac{c}{2(1-b_1)(2-b_2) \times etc,} + \sqrt{\left(\frac{c}{2(1-b_1)(1-b_2) \times etc,}\right)^2}$$

$$+ \frac{a_2}{2(1-b)(1-b_2) \times etc.,} + a_1$$

In this chapter, Mallana gives many sums which are of his own creations

1 *Ibid*, July 1961, p.261

2 T Kodandaramaiah, op cit, p.263

Trairāśikagaṇita is the fourth chapter in Pāvūluriganita In the original, it is explained in 43 verses As it contains the sums relating to *pramāṇaphala* and *icchā*, it is known as *Trairāśikagaṇita* or the 'Rule of Three'

If a man travels 5 1/4 yojanas in 3 1/4 days, find the distance that he can cover in a year and a day "In this sum, 3 1/4 days is the *Pramāna*, 5 1/4 yōjanas is the *phala* and one year and a day is the *iccha*. In this chapter, the method of finding out the *icchāphala* is explained with the help of the above three [1]

Mallana's work is useful in tracing not only the development of mathematics but also the economic conditions in those days. He gives much information about the weights, measures and currency of the day Prof A Vaidehi Krishna Murthy already took such an information from *Sārasangrahagaṇita* [2] Mallana gives the following four kinds of weights of different kinds of articles which can be found in vogue in the coastal Āndhra in those days

I The weight of

4 seeds of rice	= 1 gunja
4 gunjas	= 1 rūka
4 rūkas	= 1 dhāraṇa
4 dhāraṇas	= 1 gadde
4 gaddelu	= 1 kārṣamāna
4 kārṣamānas	= 1 palamu
4 palas	= 1 vīsa
100 vīsas	= 1 bāruva
10 vīsas	= 1 cinnam
10 cinnams	= 1 māḍa
18 māḍas	= 1 palam
2 palas	= pāvuseer

1 Ibid, March, 1961, p.60

2 A.Vaidehi, *Social and Economic Conditions in Eastern Deccan* (1970), pp.115-117

4 pāvuseers	= 1 dhānem
4 dhānems	= 1 maṇugu
4 maṇugus	= 1 puṭṭi
II The weight of	
4 mustard seeds	= 1 vīsam
2 vīsas	= 1 jāva
2 jāvas	= 1 gunja
2 gunjas	= 1 vallam
4 vallams	= 1 masamu
12 masams	= 1 tōla
24 tōlams	= 1 seer
100 seers	= 1 puṭṭi
III The weight of	
2 vīsālu	= 1 paraka
2 parakas	= 1 pātika
2 pātikas	= 1 aḍḍuga
2 aḍḍugas	= 1 cinna
5 aḍḍugas	= 1 cavile
2 caviles	= 1 dhāraṇam
2 dhāraṇams	= 1 māḍa
3 māḍas	= 1 tula
6 tulas	= 1 pāvu
4 pāvus	= 1 seer
10 seers	= 1 takkeḍa
2 takkeḍas	= 1 dharaṇi
4 dharaṇis	= 1 maṇugu
5 maṇugus	= 1 edumu
2 edumulu	= 1 pandumu

2 pandumus	= 1 puṭṭi

IV The weight of

1 maize seed	= 1 vīsa
2 visas	= 1 paraka
2 parakas	= 1 pātika
2 pātikas	= 1 aḍḍiga
2 addugas	= 1 rūka
10 rūkas	= 1 māḍa
3 mādas	= 1 tula
5 tulas	= 1 pala
4 palas	= 1 seer
5 seers	= 1 vīsa
2 vīsas	= 1 dhātam
4 dhātams	= 1 maṇugu
12 maṇugus	= 1 baruvu

With regard to the weights of precious metals such as gold and silver he gives the following information

4 gōkarṇa kānulu	= 1 sorakāṇi
4 sorakānulu	= 1 pīra
4 pīralu	= 1 kāni
4 kānulu	= 1 vīsa
4 vīsālu	= 1 pātika
4 pātikas	= 1 cinna
10 cinnas	= 1 māḍa
3 māḍas	= 1 tōla
24 tōlas	= 1 seer
5 seers	= 1 vīsa
2 vīsas	= 1 ettu

8 visālu	= 1 maṇugu
160 visālu	= 1 puṭṭi

According to *Sārasangrahaganita*, the measurements in case of grain are as follows·

The weight of

900 seeds of paddy	= 1 sōleḍu
4 sōlas	= 1 māna
4 mānas	= 1 kuncham
4 kunchas	= 1 tūmu
20 tūmus	= 1 puṭṭi

Land measurements given in this work are as follows

12" × 12"	= 1 kuṇṭa
25 kuntas	= 1 tūmu
1/2 tūmu	= 1 irusus
500 kuntas	= 1 puṭṭi

The coins of the day that can be found mentioned in Ma... work are kāni, cinnamu, pātika, paraka, māḍa, gadde, rūka etc The standard coin was ruka and the terms aḍḍuga, pātika, paraka and visa indicate the fractions 1/2, 1/4, 1/8 and 1/16 of it Ten rukas make one gadya or māḍa. 1/10 of a mada was known as cinnamu Mallana gives the following table of units of currency.[1]

4 gōkarṇa kānulu	= 1 sura kāni
4 sura kānulu	= 1 pīra
4 pīralu	= 1 kāni
4 kānulu	= 1 visamu
4 visālu	= 1 pātika
4 pātikas	= 1 chinna
10 chinnas	= 1 māḍa

1 A Vaidehi Krishna Murthy, *Social and Economic Conditions in Eastern Deccan*, Madras, 1970, pp.114-115

"More over Pāvulūri Mallana gives in his book several problems of Arithmetic wherein he lists out the rates of which articles are sold From that we can get an idea as to what type of articles were sold and the price at which they were sold "[1] Though it is a mathematical work it serves as a valuable source book for the reconstruction of the socio-economic history of the day. It refers to the rates of various goods, variety of crops, games, amusements, munificient activities of the people, etc

VALLABHĀRYA

The cultural achievements of the Rayas Vijayanagara made their place glittering in the annals of the History of India They patronised all the arts, crafts and the sciences Following their foot-steps, their ministers and officers also contributed much for the development of arts and technical sciences by patronising the scholars or skilled persons in their courts Some times, the scholars who became rich after royal patronage, used to give helping hand to the other people who seek to develop their arts through the patronage of any munificient person Among such persons, the name of Bommalāṭa Kāla must be mentioned here. He was the son of Bommalāṭa Virūpakṣha. Their family dedicated to the art of displaying the puppet-show which was one of the chief entertainments in those days It seems that they acquired a lot of wealth and fame Kāḷa became the confidential servant of Krishnadevaraya and after him, his brother Achyutadēvarāya It seems that he held a great position in the court of Achyutadevaraya and patronised many scholars Among the scholars in his court, Vallabhārya held a great position He was called as *Kavidēvēndra* and *Kavimahēndra* He was not only a great poet but also a proficient mathematician. As he was recognised by all the accountants in the court of Kāḷa as the proper person competent enough to translate the work of Bhāskarācārya into Telugu, the patron who was himself a great scholar, requested Vallabharya to undertake the work. Thus started the writing of *Āndhra Līlāvati*, a mathematical work in Telugu.

A sum which is given as an example in this work helps us in identifying his date and the position held by his patron in the royal court and in the contemporary society It sums up thus "Achyuta Raya presented a large amount of money to his subordinate Bommalāṭa Kāla of which he presented half to his religious preceptor Kumāra Tātācārya,

1 Ibid, p.115

of the remainder, he gave two-thirds to Brahmins, of what remained still, he gave a fourth to poets, and giving five-nineths of what remained yet to his friends, gave the author Kavi Devendra himself, the rest which amounted 1,116 and what was the actual amount?"

In the opening verse and colophons of each chapter of his work, Vallabharya gives some details about his personal life He introduces himself as the son of Kōḍuri Rāghava Sūri, the grandson of Eṛrayāmātya and the desciple of *Paramahamsa Parivrājakācārya* Prabōdhānanda He belonged to the niyogi Brahmin family of apastamba sutra and Harita gotra His grandfather might have served as a revenue officer as was mentioned as an *amatya* His father too must be a scholar as was mentioned simply as *suri* (scholar), probably in mathematics, the specialisation subject of the *niyogi* family. In the beginning verses of the chapters, he paid his obeisance to Lord Siva, Parvati, Saraswati, Ganesa and his guru Though a Saivite, he was patronised and favoured by his patron Kala, who was a Vaishnavite and a desciple of a staunch Vaisnavite guru Tatacarya It indicates the healthy atmosphere prevailed in the socio-religious ground of the period

In the beginning of the work, Vallabharya explained the time-sense in minutes, hours, *ghatikas*, *muhurtas*, *ahoratras*, *paksa*, *masa*, *rtu*, *ayana*, and *kalpa*. Next he explained the weights and measurements

Bhāskarācārya's work *Sddhanta Siromani* is in four parts i.e., i) *Pāṭīgaṇita* or *Lilavati* ii) *Bijaganita* iii) *Grahaganita* and *Goladhyaya*. The *Līlāvati* or *Patiganita* deals with arithmetic and geometry. Vallabharya states in the beginning that mathematics consists of three parts viz , i) *Grahagaṇita*, ii) *Bījagaṇita* and *Pāṭīgaṇita*. In *Pāṭīgaṇita*, the *Parikarma* with eight topics viz., addition, subtraction, multiplication, division, squaring, cubing, extraction, of square and cube-roots are dealt with first. Then he expalined the *vyasthavidhi* (method of inversion), *istakarma* (unitary method), *sankramaṇa* (finding a & b when a+b & a-b are known i.e , the method of elimination), *vargasankramana* (findign a & b from a-b & a^2-b^2), *vargakrama* (finding a & b so that a^2-b^2-1 & a^2-b^2 -1 may be perfect equals), *mūla(jāti)guṇaka* (problems involving square-roots i.e., those which lead to quadratic equations), *trairāśika* (rule of three); *bhāṇḍapratibhāṇḍaka* (barter), *miśravyavahāra* (mixtures), *srēṇīvyavahāra* (series), *ankapāśa* (permutations and combinations) and *kuttaka* (indeterminate analysis). He did not give importance to the *bhāṇḍapratibhāṇḍa* (barter) system but added some verses when he felt it necessary

Though the author mentions that it is the translatory work, he took his own examples while dealing with the mathematical problems Here and there, he explains the local systems prevailed in those days As in the case of Mallana's *Sārasangrahagaṇita*, *Līlāvati* of Vallabhārya also gives an account of weights and measures, the coins in vogue, the commercial transactions, etc , prevailed in this region. He mentions that it is good to know about the different technical names of weights and measures in existence in various parts of this region. Thus Vallabharya provides us an useful source-material through his work, for the reconstruction of the economic history of the period.

IV. METEOROLOGIST

DŌNAYĀMĀTYA

During the medieval period, the science of climatology also received the special attention of the Āndhra scholars Previously, it was studied by the astrologers as a part of their subject. As a result of it, we can see its growth on the lap of its maternal sçience. A special work was written by Dōnayāmātya on this science in the middle of the fourteenth century His work *Sasyānandamu* deals with the study of the climatology which helps in forecasting the rainfall.

In this region, agriculture and horticulture were in a flourishing stage during this period. It can be gleaned from the writings of the foreign travellers, the writings of the indigenous scientists, and the contemporary literary works and inscriptions. The people of all castes including the Brahmins were engaged in agriculture. The drug-substances available in Koṇḍavīḍu, Koṇḍapalli, Nūzivīḍu, Śrīśailam, Bezawāḍa (Indrakīlādri), Tirupati, Kāḷahasti, Drākṣārāma, Ēlēśwaram and Warangal were in great demand. The traders in drug-substances like Dēvayaceṭṭi, Avaci Tippaya Seṭṭi, Vēmāla Seṭṭi, etc traded in other parts of India and with foreign lands such as Ceylon, Portugal, Holand, Russia, Brazil, etc The kings donated gardens to the medical scientists and to the temples and mathas *Udyānavanas* were maintained through out the country. Some agriculturists produced crops thrice in a year *Hamsavimsati*, a literary work of the seventeenth century gives a list of a great variety of paddy produced by the farmers of this region. In such a days when the knowledge of agriculture and horticulture was regarded as the most requisite for the achievement of welfare of the common people, *Sasyanandam* might have helped them to know before-hand the climatic conditions of the coming season. Accordingly, they could take precautionery steps such as postponing or preponing the sowing of the seeds, transplantation or harvest, changing of the crops, etc

Dōnayāmātya belonged to the *niyogi* Brahmin family of *Śrīvatsa* gōtra. Māciraja and Rudramāmba were his parents. He paid his regards to Simhacaleswara and Srigirisa. He composed many verses addressing Srigirisa. We find the name of his patron as Upendra who had the title *Sarwalōkāśraya*. N.Venkata Rao identified the patron of Donayamatya with the ruler of the Elamanchili region (Visakhapatnam dt) who was the descendent in the lineage of Rajarajanarendra, the

Eastern Chalukyan king The descendents of Rājarāja bore the title *Sarwalōkāśraya* There were four kings by the name Upēndra having the same title

Vimalāditya

Rājarājanarēndra

Kuḷōttunga

Vijayāditya

Mallapadēva

Upēndra I

Mallapadēva II (A D 1283)

Upēndra II (A D 1283)

Mopparāju

Upēndra III (Bhīmāmba)
(The king who is mentioned in *Sasyanandam*)

Cennēśa — Upēndra IV

Viśwēśwara Rāju

There is a verse in the text which mentions that the work was composed in the year's 1278 (A D 1356) This date falls under the regnal period of Upendra III

In two of his verses, Dōnaya explained the subject addressing Lord Siva seated at Siddhavatam which is situated in the present Kurnool dt He addressed many verses to Śrīgiriśa and some others to Īśwara who is seated at Simhācalam situated in his patron's region It indicates the fact that Donaya must have originally belonged to Kurnool region and later migrated to Elamancili region seeking patronage

In the beginning of his work, Dōnaya explained the importance of the rainfall for the welfare of the human-beings Then he states that he will try to explain the reason for *pravarṣa* (the fall of rain) and *vivarṣa* (no fall of rain) in his work The work contains the following topics

mēghanirṇayadhātuprakāra, *garbhakāla*, *māsagarbhalaksanamulu*, *drōṇapramāṇamu*, *candrayōgam*, *phalapakṣiyōgam*, *vāyuprakāram*, *ītilaksanam*, *grahanōtpātam*, *grahacāralaksanam*, *varsapraśnōttaram*, etc

Method of forecasting the rainfall

Dōnaya explained a method of how to forecast the bulk of rainfall in the coming season thus [1] "Those who want to know the rainfall of the coming season should choose the Full Moon day in the month *puṣya* On that night, an yoke which is arranged with rolled cotton should be kept in the open ground The cotton should be taken out early in the morning and should be pressed If the water falls in a flowing from the cotton, it is an indication of heavy rainfall in the coming season If the water falls drop by drop, a medium rainfall and if no water falls from the cotton, then there will not be any rain in the coming season" He observed that the other climatic and astronomical changes in the Nature and tried to forecast the rainfall He says that if the clouds appear in the sky as the lakes or army or houses or mansions or waves if the sea or the palmdate trees or oxen or sandheaps, there will be a good rainfall fulfilling the desires of the people If the moon is in congregation with either Śukra or the Śani who is in the seventh place, there will be continuous rainfall in the coming season [2] If sweet-smelled air breezes on the days of *dwadasi* and *Puṣyami* in the month of Magha, there will be a rainfall with in the month or in Jyēṣṭa If the moon is in the second house of *kṛttika*, the sun is in *simharāsi* and the *guru* is in *Mēṣarāsi* in the month of winter, there will be a heavy rainfall If the clouds rising at the sunset on the padyami day of *Asadha* gather at the west, then there will be no rain in that year. He observes the characteristics of drought and says that if the couds in the first four days of Krsnapaksa of the month of *Vaiśākha* run in the sky, in the same days of the months of *Śrāvaṇa* and *Bhādrapada*, *Āśwayuja* and *Kārtīka*, there will be no rain except an active wind, sun and clouds. If the rising Moon in the month of Jyēsta enters into *Pūrwāsādha* or in *Rōhini naksatra*, there will not be any rain, but the sky appears cloudy

Now-a-days we see the farmers who observe the movements of the birds as indications to forecast the direction of the rain fall

1 *Saśyānandam*, I-42

2 *Ibid* IV-18

3 *Saśyānandam*, II

Especially they believe that if the *gijagadu* bird makes its nest keeping its entrance into it in particular direction, the farmers believe that the rain will fall from the opposite direction They believe the birds can forecast it with their inherent capacity to sense it Dōnaya expalined such indications in his work [1] If the land-frog cries, if the animals stay for a long time in the water, if the baby fish play jumping in the water, if a chameleon rolls on the farina of a flower, there will be a good rain fall condusive to more agricultural production [2] If the *bhūnāgas* roll down on the floor incessantly or if the animals climb upon the heaps and ant hills without any reason, it is an indication of heavy rain fall [3] If the animals from the out skirts of the village enter into the village running with stiff ears, tails lifting above, and if the ants appear in lines carrying their eggs in their mouths, they denote the rainfall [4]

The Method of Measuring the Rainfall

To measure the bulk of rain fall, a *Kalasa* with 63 inches circumference at the top is suggested to be kept outside when the rain starts After the rain, the water gathered in the *Kalaśa* is to be measured If the water inside the jar (*kalaśa*) is four *tumus* we know that it rained one *drōna* [5]

The Taste of Rain - Indication of Agricultural Output

Dōnaya explained the method of forecasting the bulk of crops in accordance with the taste ot rainy water If the rainy water is astringent, millet, if it is bitter, sesamom, cotton and sunflower, if it is sweet the sugar cane, if tasteless jowari and wheat, if it is *kasaru,varigalu* (a kind of cereal), *ganṭe* (a kind of grain called the little millet) etc, will yield more production. If the rainy water is sour there grow *talu* (empty ears of corn), If it is salty, the output of the crops decreases

Thus we can see many useful things to farmers in this work It must have become very popular in those days when the majority of the people depended on agriculture It helped the farmers to know

1 *Ibid*, II, 52,53 & 54

2 *Ibid*, III, 21

3 *Ibid*, III, 22

4 *Saśyānandam*, III-27

5 In the villages, people say that one *drona* is equal to 12 *mānikas* (approximately 24 letres) Then one *tūmu* means 3 mānikas

beforehand, the weather conditions of the coming season. It guided them to take precautionery steps like postponing the sowing of the seeds, transplantation, etc and postponing or pre – poning the harvest, changing the crops, etc

EPILOGUE

While the kings of medieval Andhradesa were striving for the protection of Hindu Dharma and culture, the scholars of this region stood by their side for the upliftment of the arts, sciences and culture of their land Many scholars dedicated their lives for the development of the sciences As a result of it, we can observe a new trend developed in the society, especioally in the academic ground They undertook indepth studies and took up research work in their subjects Some scholars, just as mentioned in the Brahmana Kraku inscription, formed into a group and they were identified as *mahajanulu* They recieved agra – haras from the kings and distributed them among themselves for their livelihood Some scholars were patronised by the temples and the mathas As a result of the efforts made by the scholars like Mallana, Vallabhārya, Bāhaṭa, Śārjnadhra, Pānakālarāya, Indrakanthivallabhārya, Basavarāju, Trimallabhaṭṭa, Mallāri Pandita, Nārayāmātya, Donaya, etc , we can observe a significant and healthy development in different branches of sciences Especially, the development of indigenous medicine reached its zeneath during this period But the dates of the scientists of this region remained in darkness as they did not give much information about their personal life They were interested in the development of the science and least bothered about their fame As a result of it, the information regarding a great movement in medical research remained in darkness However, after a great effort, with the help of the meagre information available in the text about the father or preceptor of the author, or a reference in any other work about him or a reference in any inscription, the historicity and whereabouts of the scientists are brought into light It helps us in achieving clarity in the stages of development of the sciences

The mathematicians, though followed the works of the *siddhanta* period such as the works of Varāhamihira, Āryabhaṭa, Brahmagupta, etc , they developed their own methods for the approach of solution, especially in addition, subtraction, division, squaring, cubing mixtures, the rule of three, etc , In *Bījaganita*, *Ksētragaṇita*, *Grahagaṇita*, etc , we do not find much original work They translated the works of Mahāvīrācārya and Bhāskarācārya and followed them to a great extent

In the field of medicine, more research work was done comparing to the other sciences The medical scientists of this region made use of all the geographical, political and cultural conditions prevailed,

here They undertook wide study and indepth investigations into the qualities and properties of the drugs and medicines and composed many works in Sanskrit as well as Telugu They accepted the principles laid down by the ancient *triad* In diagnosis, therapeutic methods, *materia medica*, pharmacological methods, etc , they undertook research and invented many new things At about A D 1300, the method of *aṣṭasthānaparīkṣa* in diagnosis was introduced by the Āndhra scholars It marked a mile stone in the history of indigenous medicine in India The preparation of *rasa* drugs became an art during this period The invention of a new method ie , the calcination of mercury added credit to the Āndhra scholars The invention of new drugs such as *pūrṇacandrōdaya* and *makaradhwaja* was the result of the incessant research made by them Rāvaṇapaṇḍita prepared *arags* borrowing the pharmacological method from the Unani system The Andhra physicians administered them in their practice Though Rāvaṇapandita borrowed the pharmacological method from the Unani system, he made use of the same drug substances as prescribed in *Bhāvaprakāśa* Thus accepting the traditional system and the scientific truths on the one hand, they received, on the other hand, many good things from the other systems such as the Unani and contributed for the development of the indigenous system of pharmacy

Indrakanṭhi Vallabhācārya's analysis of psychic diseases is significant. He explained the scientific causes of these diseases and the methods with which they were to be treated. The brutal methods of treatment such as whipping, frightening, burning with hot iron, exposing to the sun, etc , were not prescribed by him. He explained various kinds of fevers and *kāsalu* (cough) He prescribed drugs to be taken to alleviate the epidemic diseases The medical scientists must have realised the fact that the people get some psychological courage to face the epidemic diseases or some other severe diseases by performing the propitiatory rites That's why, some of them especially Vallabhācārya prescribed the propitiatory rites along with medical prescriptions such as *dhūpas*, decoctions, medicinal stones, etc and the dietetic regulations

The medical scientists of this period did not stop giving the irrational causes for the occurrence of a disease as *karmavipāka*. But it is sure that they did not completely rely on this in their profession though they propagated it in the society. They continued this belief among the common people only to safe—guard the ethical values in the society They were guided by the traditional knowledge and they

dedicated their lives naturally for its protection That's why, though they found many scientific truths in course of their research, they first explained the traditional knowledge that they gained and then tried to explain their new findings on scientific lines It seems that they felt it their responsibility to safegaurd the *dharma* in the society They tried to infuse fear against sin in the minds of the common people by propagating the *karmavipāka* In case of therapy, they prescribed some propitiatory rites such as *dāna* (donation), *hōma* (religious rites) *japa* (meditation), *niyama* (rules of conduct), etc , to inculcate in the people charity, respect towards religion and righteousness

The veterinary scientist Mallāri Paṇḍita was wellversed in Ayurveda also He and many other *asvavaidyas* and *gajavaidyas*, who were mentioned in the inscriptions served the society with compassion and humanitarian outlook The *parahita* physicians are mentioned as serving the human beings as well as the animals and other creatures As it was a period of wars, *asvavaidyas* were well received by the rulers These scholars developed diagnosis and therapeutic methods basing on the *tridosa* theory They tried to frame certain principles in identifying the good or bad quality of horses or elephants Their prescriptions were in accordance with the availability of the local drug-substances

Dōnayāmātya's efforts in formulating the principles which help in forecasting the rainfall of the coming season, the methods of measuring the rainfall, etc , might have helped the common people who were engaged in agriculture Dōnaya's work reveals the farmer's active involvement in his occupation

The scientists received high esteem in the society as well as in the royal courts As they acquired eminence in many subjects related to their specialistion, they were respected in the academic field also The kings and their people recognised the importance of the scientists in the society They made grants to the scholars so that they should not suffer for their livelihood The scientists at the same time kept up their status in the society by their good moral conduct and selfless services to the masses They inserted the principles of *dharma* whenever they found an opportunity Especially, the medical scholars tried their best to maintain ethics in their profession

The constructive work taken up by the scientists in the research field gradually crept into stagnation in this region as the political condition from the close of the seventeenth century turned unfavourable The absense of a strong government at the centre and the liquidation of the

feudal lords in the local level who were their direct or sometimes indirect patrons created a helpless situation to the scholars The minds of the scholars were preoccupied with despair and dissatisfaction as their livelihood itself became a big question mark This condition continued till the first quarter of the nineteenth century when the revivalist movement was started as a part of the Swadeshi Movement Some scholars in mathematics like G V Raghava Rao, D Y Somayaji, T Kodandaramaiah, etc , wrote essays to the Telugu journals appealing for the revival of the oriental systems in mathematics *Līlāvatīgaṇita* and *Pāvulūrigaṇita* written in Telugu with commentaries were published later in the Telugu journals to place before the people and the scholars the significance of the system Now the whole world accepts the invention of the Indian numerals and decimal system as those of the Indian scientists

Likewise, Ayurveda also gained recognition all over the world Due to the efforts made by the Andhra scholars like Achanta Laxmipati and Divi Gopalacharyulu in the Madras presidency, the indigenous medicine started developing in this region in many aspects such as pharmacy, therapeutics, etc , in accordance with the changing conditions and developments Now it is the responsibility of the Universities and the government to encourage studies in the works of the scientists of this region who undertook research utilizing the local resources and who moulded the results as useful to the society Such studies help the future scientists in evolving the developmental stages with accuracy which in turn will throw light on their way to further research It definitely helps the researchers working on the socio-economic and cultural history as the works on sciences also contained a lot of source material

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